

**REPORT NUMBER: SINCAP-KAR-14-007**

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

**VOLKSWAGEN DE MEXICO S.A. DE C.V.  
2014 VOLKSWAGEN JETTA HYBRID SE 4-DOOR SEDAN**

**NHTSA No: O20145801**

**PREPARED BY:  
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**DECEMBER 9, 2013**

**FINAL REPORT**

**PREPARED FOR:  
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NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
OFFICE OF CRASHWORTHINESS STANDARDS  
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\_\_\_\_\_  
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NHTSA, Office of Crashworthiness Standards

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

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

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## TECHNICAL REPORT DOCUMENTATION PAGE

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### 15. Supplementary Notes

### 16. Abstract

A 55/28 km/h 90 deg. Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2014 Volkswagen Jetta Hybrid SE 4-door sedan in accordance with the specifications of the Office of Crash Worthiness Standards Test Procedure for the generation of consumer information on vehicle side crash protection. The test was conducted at the KARCO Engineering, LLC. facility in Adelanto, California on November 25, 2013.

The impact velocity of the Moving Deformable Barrier was 61.50 km/h and the outside ambient temperature at the struck (driver's) side of the vehicle was 16.1 deg. C. The target vehicle's maximum post-test static crush was 249 mm located at level 3. The test vehicle's occupant performance data is as follows:

Measurement Description	Driver ATD (ES-2re)		
	Units	IARV	Result
Head Injury Criteria (HIC <sub>36</sub> )		1000	112.4
Maximum Thorax Rib Deflection	mm	44	17
Total Abdominal Force	N	2500	993
Pubic Symphysis Force	N	6000	1429

Measurement Description	Passenger ATD (SID-IIs)		
	Units	IARV	Result
Head Injury Criteria (HIC <sub>36</sub> )		1000	423.0
Resultant Lower Spine Acceleration	g	82	58
Total Pelvic Force (Sum of Acetubular and Iliac Forces)	N	5525	1774
Maximum Thoracic Rib Deflection	mm	38*	22
Maximum Abdominal Rib Deflection	mm	45*	26

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

\* Proposed IARV

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**SECTION 1**  
**TEST PURPOSE AND PROCEDURE**

This moving deformable barrier side impact test is part of the MY 2014 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 2014 Volkswagen Jetta Hybrid SE 4-door sedan. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated September 2013.

## SECTION 2

### SUMMARY OF TEST RESULTS

A 2014 Volkswagen Jetta Hybrid SE 4-Door sedan was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 61.50 km/h (38.21 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by KARCO Engineering, LLC. in Adelanto, California, on November 25, 2013. Pre- and post-test photographs of the test vehicle, the MDB and the dummies (ES-2re and SID-IIs) are included in Appendix A of this report.

Dummies were placed in the driver and left rear designated seating position according to instructions specified in the OCWS Side Impact Laboratory Test Procedure, dated September 2013. The side impact event was documented by 11 cameras. Camera locations are included in Data Sheet No. 5 of this report.

The dummies were instrumented in the following manner:

#### DRIVER ATD (ES-2re)

Primary and redundant head CG tri-axial accelerometers

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

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

Lower spine (12) tri-axial accelerometers

Pubic symphysis y-axis load cell

#### PASSENGER ATD (SID-IIs)

Primary and redundant head CG tri-axial accelerometers

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

Abdomen upper rib and lower rib y-axis displacement potentiometers

Lower spine (12) tri-axial accelerometers

Acetabulum and iliac wing y-axis load cells

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

Dummy injury readings were recorded as follows:

Measurement Description	Units	Driver ATD (ES-2re)	
		Threshold	Result
Head Injury Criteria (HIC <sub>36</sub> )		1000	112.4
Maximum Thorax Rib Deflection	mm	44	17
Combined Abdominal Force	N	2500	993
Pubic Symphysis Force	N	6000	1429

Measurement Description	Units	Passenger ATD (SID-IIs)	
		Threshold	Result
Head Injury Criteria (HIC <sub>36</sub> )		1000	423.0
Lower Spine (T12) Resultant Acceleration	g	82	58
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	1774
Maximum Thoracic Rib Deflection	mm	38*	22
Maximum Abdominal Rib Deflection	mm	45*	26

\*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	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	No		No	

### GENERAL COMMENTS

The two doors on the struck side of the vehicle remained closed and latched. There was no separation at the hinges or latches. The 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: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801

Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13

#### 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 <sup>2</sup>	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: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801  
 Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13

**TEST VEHICLE INFORMATION AND OPTIONS**

NHTSA Number	O20145801
Model Year	2014
Make	Volkswagen
Model	Jetta Hybrid SE
Body Style	4-Door Sedan
VIN	3VW637AJ2EM209260
Body Color	Platinum Gray Metallic
Odometer Reading (km / mi)	55 / 34
Engine Displacement (L)	1.4
Type / No. of Cylinders	Inline 4 Hybrid
Engine Placement	Transverse
Transmission Type	Automatic
Transmission Speeds	7
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	No
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	No
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Torso/Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	No
Driver Load Limiter	Yes
Rear Pass. Load Limiter	No
Other Safety Restraint	No

Does Owner's Manual provide instructions to turn off automatic door locks? No

**DATA FROM CERTIFICATION LABEL**

Manufactured By	Volkswagen De Mexico S.A. De C.V.
Date of Manufacture	Aug-13
Vehicle Type	Passenger Car

GVWR (kg)	2010
GAWR Front (kg)	990
GAWR Rear (kg)	1070

**VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION**

Measured Parameter	Front	Rear	Third	Total
Designated Seating Capacity	2	3		5
Capacity Weight (VCW) (kg)				477.0
DSC x 68.04 (kg)				340.2
Cargo Weight (RCLW) (kg)				136.8

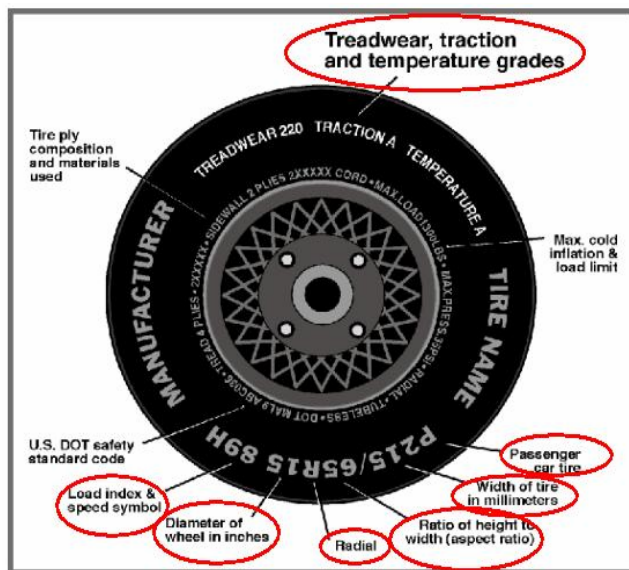
**VEHICLE SEAT TYPE**

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: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan    NHTSA No. O20145801  
 Test Program: NCAP MDB Side Impact Test    Test Date: 11/25/13



Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	350	350
Cold Pressure (kPa)	280	280
Recommended Tire Size	195/65 R15	195/65 R15
Tire Size on Vehicle	195/65 R15	195/65 R15
Tire Manufacturer	Continental	Continental
Tire Model	Conti Pro Contact <sup>E</sup>	Conti Pro Contact <sup>E</sup>
Treadware	500	500
Traction Grade	AA	AA
Temperature Grade	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Polyamide	1 Polyester, 2 Steel, 1 Polyamide
Load Index/Speed Symbol	91H	91H
Tire Material	Polyester, Steel, Polyamide	Polyester, Steel, Polyamide
DOT Safety Code Left	P5AE WB4X 1513	P5AE WB4X 2213
DOT Safety Code Right	P5AE WB4X 2213	P5AE WB4X 2213

**DATA SHEET NO. 1 ... (CONTINUED)**

**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801  
 Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13

**TIRE PRESSURES**

	Units	LF	RF	LR	RR
As Delivered	kPa	250	255	245	245
Tire Placard	kPa	280	280	280	280
Owner's Manual	kPa	280	280	280	280
As Tested	kPa	280	280	280	280

**MDB TIRE SPECIFICATIONS**

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

**TEST VEHICLE AXLE WEIGHTS**

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	431.5	342.0		458.0	471.0		446.5	477.0	
Right	kg	398.5	336.5		404.5	431.0		398.0	445.5	
Ratio	%	55.0%	45.0%	100.0%	48.9%	51.1%	100.0%	47.8%	52.2%	100.0%
Total	kg	830.0	678.5	1508.5	862.5	902.0	1764.5	844.5	922.5	1767.0

**TARGET TEST WEIGHT CALCULATION**

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1508.5	A
Actual Weight of 2 P572 ATDs Used	kg	125.0	B
Rated Cargo/Luggage Wt (RCLW)	kg	136.8	C
Calculated Vehicle Target Wt (TVT <sub>W</sub> )	kg	1770.3	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	Fully Loaded	As Tested	Meets Requirement***
LF	mm	678	676	Yes
RF	mm	688	680	Yes
RR	mm	643	640	Yes
LR	mm	647	645	Yes
Vehicle CG (Aft of Front Axle)	mm	1385	1356	
Vehicle CG (Left (+)/Right (-) from Longitudinal Centerline)	mm	35	41	

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

**DATA SHEET NO. 1 ... (CONTINUED)**

**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801  
Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13

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

Component Description	Weight (kg)
Spare Tire	17.0
Spare Tools	3.0
Trunk Trim	6.5
Ballast / Equipment Added	177.0

Test Height Adjustable Setting (If Applicable)	
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**DATA SHEET NO. 2**

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

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801  
 Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13

**SEAT POSITIONING**

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

**SCRL ANGLE RANGE**

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	5.0	0.0	2.5
Front Passenger Seat	4.0	0.0	2.0
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	2.5	502	Max	492	502	512
			Mid	492	502	512
			Min	492	502	512
Front Passenger Seat	2.0	482	Max	475	482	489
			Mid	475	482	489
			Min	475	482	489
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**

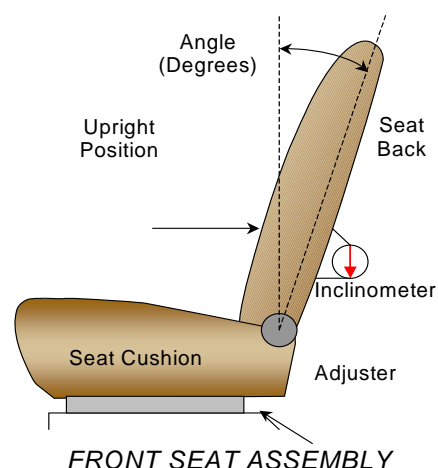
Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801  
 Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13

**SEAT FORE/AFT POSITION**

Seat	Total Fore/Aft Travel		Test Position From Forwardmost Position	
	mm	Detents	mm	Detent
Driver Seat	254	38	127	19
Front Passenger Seat	172	36	90	13
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 to the manufacturer's designated design angle. The right front passenger's seat back is positioned in a similar manner as the driver's seat back. The struck side rear seat back is positioned such that the dummy's head is level. The rear center and non-struck side rear outboard seat backs are positioned in a similar manner as the struck side rear seat back. Seat back angle is measured at the seat back.



**SEAT BACK POSITION**

Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents	Degree	Detent
Driver Seat w/Seated Dummy	73.0		19.0	
Front Passenger Seat	72.3		19.0	
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 ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801  
 Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13

#### 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	M1
Rear Seat	Fixed	Fixed

#### HEAD RESTRAINT ADJUSTMENT

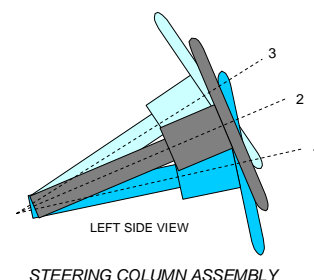
The driver's head restraint is adjusted to the highest and most full forward in-use position. The struck-side rear passenger's head restraint is adjusted to the lowest and most full forward in-use position.

	Total No. of Positions	Placed in Position
Driver Seat	5	Full Up
Rear Seat	2	Full Down

#### 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	20.5	69
Geometric Center - Position 2	22.9	98
Uppermost - Position 3	25.4	127
Telescoping Steering Wheel Travel		58
Test Position	22.9	98



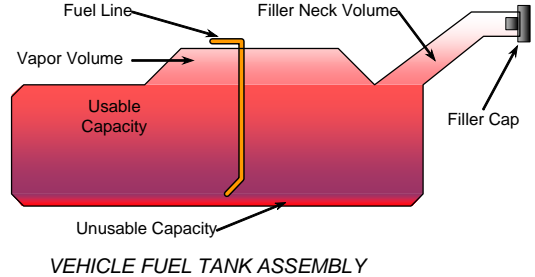
**DATA SHEET NO. 2 ... (CONTINUED)**

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

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801  
 Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13

**FUEL PUMP**

The vehicle is equipped with an electric fuel pump. The fuel pump runs for 2 seconds after ignition is switched on. If the engine doesn't run, the fuel pump stops running. If there is a crash signal, it will also stop running.



**FUEL TANK CAPACITY**

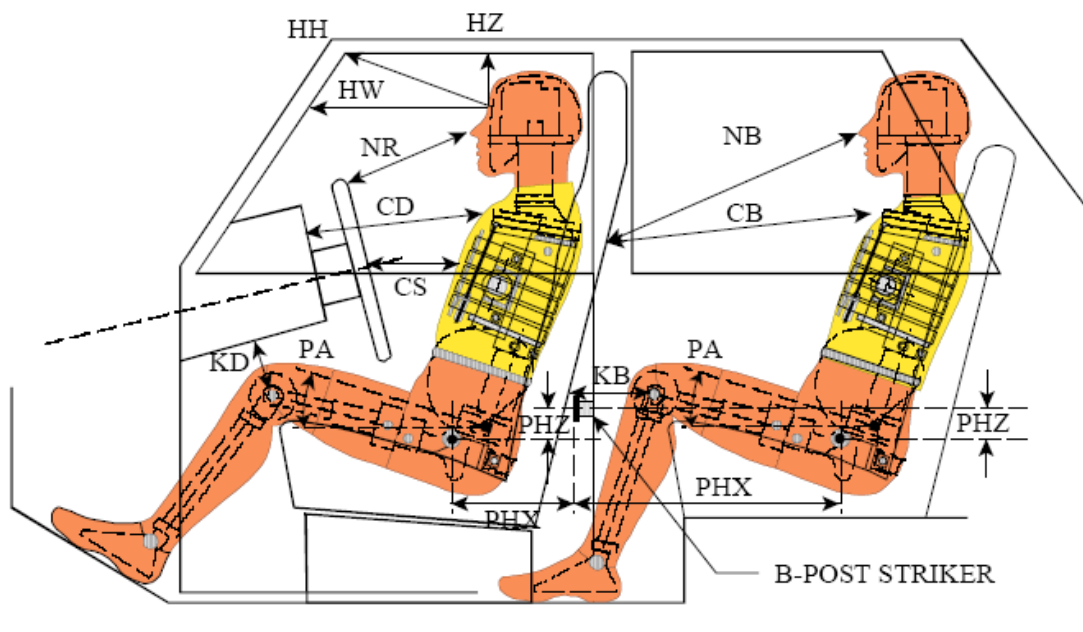
Description	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	55.00
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of "Standard Tank" (see Owner's Manual)	
Usable Capacity of "Optional Tank" (see Owner's Manual)	
93% of Usable Capacity	51.15
Actual amount of Solvent Used in Test	51.15
1/3 of Usable Capacity	18.33

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: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801  
 Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13



**LEFT SIDE VIEW**

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

#### DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

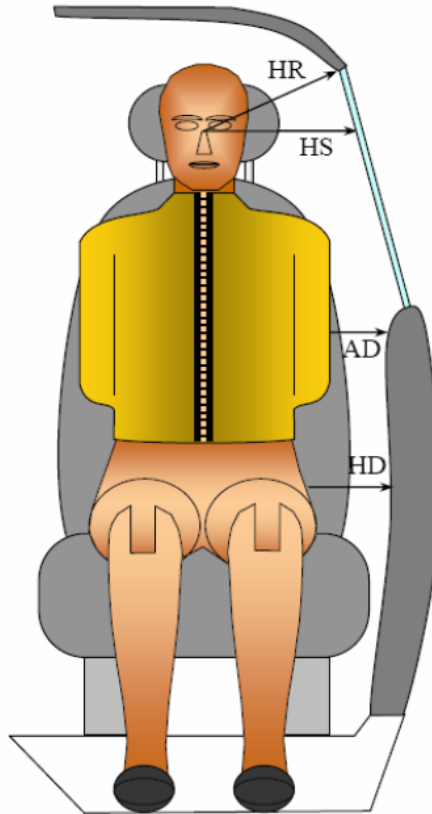
Driver Code	Pass. Code	Description	Driver		Passenger	
			Length (mm)	Angle (°)	Length (mm)	Angle (°)
HH		Head to Header	294			
HW		Head to Windshield	608			
HZ	HZ	Head to Roof	163		253	
NR	NB	Nose to Rim/Seat Back	455		604	
CD	CB	Chest to Dash/Seat Back	611		597	
CS		Chest to Steering Wheel	343			
KD(L)/KDA(L)°	KB(L)/KBA(L)°	Left Knee to Dash/Seat Back	198	33.8	310	18.0
KD(R)/KDA(R)°	KB(R)/KBA(R)°	Right Knee to Dash/Seat Back	206	36.9	318	20.0
PAX°	PAX°	Pelvic Tilt Angle X		17.9		21.1
	PAY°	Pelvic Tilt Angle Y		0.3		0.4
PHX	PHX	Hip Point to Striker (x-axis)	190		158	
PHZ	PHZ	Hip Point to Striker (z-axis)	199		247	

## DATA SHEET NO. 4

### DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801

Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13



### DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

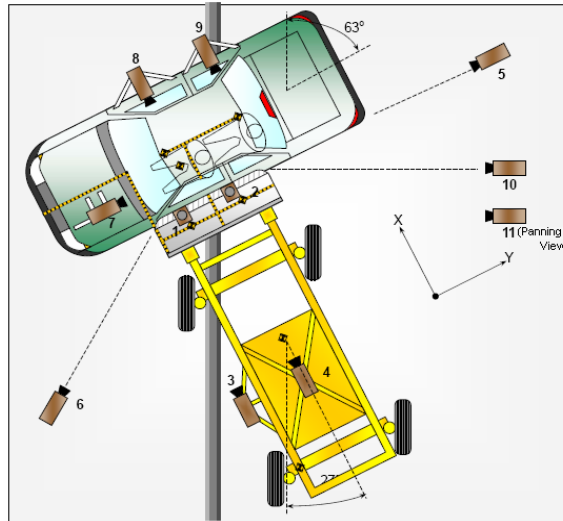
Code	Measurement Description	Units	Driver	Passenger
HR	Head to Side Header	mm	194	218
HS	Head to Side Window	mm	259	340
AD	Arm to Door	mm	113	132
HD	H-Point to Door	mm	144	152

**DATA SHEET NO. 5**

**CAMERA AND INSTRUMENTATION DATA**

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801

Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13



**CAMERA LOCATIONS AND DATA**

No.	View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Overhead Overall	1220	2287	-5486	14	1000
2	Overhead Close-Up	609	2287	-5102	35	1000
3	Left Impact Point (MDB)	-2134	0	-1143	25	1000
4	Side Overall (MDB)	-3912	838	-1829	12.5	1000
5	Rear	-64	2485	-1348	85	1000
6	Left Front	-2266	-3564	-1475	24	1000
7	Driver Front (On-Board)	559	-850	-719	35	1000
8	Driver Side (On-Board)	1618	822	-554	14	1000
9	Passenger Side (On-Board)	1604	1743	-603	14	1000
10	Real Time Overall				Zoom	30
11	Real Time Inrun				Zoom	30

Reference: Impact Point Projected to Ground; +X = To Front of MDB, +Y = To Right of MDB, +Z = Down

\*All measurements accurate to ±6 mm

**INSTRUMENTATION**

Driver Dummy Channels	16
Passenger Dummy Channels	16
Vehicle Structure Accelerometers	22
MDB Accelerometers	5
<b>Total</b>	<b>59</b>

**DATA SHEET NO. 6**

**TEST VEHICLE ACCELEROMETER LOCATIONS**

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801  
 Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13



**VEHICLE ACCELEROMETER PRE-TEST LOCATIONS**

Loc. No.	Sensor Description	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2067	0	-374
2	Right Sill at Front Seat	2747	664	-323
3	Right Sill at Rear Seat	1918	683	-320
4	Left Sill at Front Door	2465	-820	-162
5	Left Sill at Rear Door	1629	-784	-455
6	A-Pillar Lower	3279	-809	-534
7	A-Pillar Middle	3275	-809	-733
8	B-Pillar Lower	2138	-743	-660
9	B-Pillar Middle	2133	-743	-805
10	Front Seat Track	2497	-517	-315
11	Rear Seat Structure			
12	Right Rear Occupant Compartment	2153	410	-172
13	Engine Block	3778	200	-677
14	Rear Floorpan Above Axle	943	0	-409

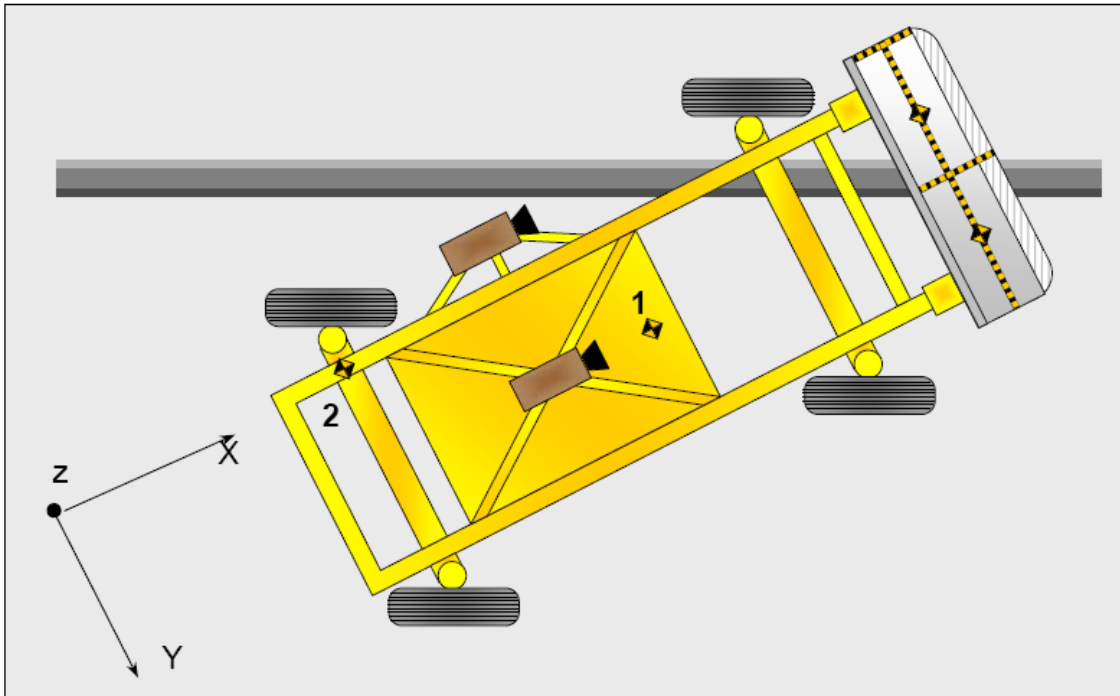
Reference: X – Rear surface of vehicle (+ forward)  
 Y – Vehicle centerline (+ to right)  
 Z – Ground plane (+ down)

**DATA SHEET NO. 7**

**MDB ACCELEROMETER LOCATIONS**

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801

Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13



**MDB ACCELEROMETER LOCATIONS**

Loc. No.	Accelerometer Location	Measurement		
		X	Y	Z
1	MDB CG	-1195	0	-430
2	MDB Rear	-2642	-593	-608

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

**DATA SHEET NO. 8**

**POST-TEST OBSERVATIONS**

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801  
 Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13

**TEST DUMMY INFORMATION AND CONTACT POINTS**

Dummy Body Part	Front Seat Dummy (ES-2re)	Rear Seat Dummy (SID-IIs)
Face	Curtain Airbag	Curtain Airbag
Top of Head	Side Header	Curtain Airbag, Side Header, C-Pillar
Left Side of Head	Curtain Airbag, Side Header	Curtain Airbag
Back of Head	Curtain Airbag, Side Header, Headrest	Curtain Airbag, C-Pillar, Headrest
Left Shoulder	Door Panel	Door Panel
Upper Torso	Seat, Torso/Pelvis Airbag	Seat
Lower Torso	Seat, Torso/Pelvis Airbag	Seat, Door Panel
Left Hip	Torso/Pelvis Airbag, Door Panel	Seat, Door Panel
Left Knee	Door Panel, Right Knee	Door Panel, Right Knee

**POST-TEST DOOR PERFORMANCE**

Description	Struck Side		Non-Struck Side		Rear Hatch/Other
	Front	Rear	Front	Rear	
Remained Closed and Operational	No	No	Yes	Yes	Yes
Total Separation from Vehicle at Hinges or Latches	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	None
Side Window Damage	Both struck side windows broken
Other Notable Effects	None

**DATA SHEET NO. 8 ... (CONTINUED)**

**POST-TEST OBSERVATIONS**

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801  
 Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13

**SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION**

Restraint Type	Struck Side Driver		Struck Side Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No	No	
Knee Airbag	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	No		No	

**IMPACT POINT LOCATION DATA**

Measured Parameter	Units	Tolerance	Value
Vehicle Wheel Base	mm		2652
Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)	mm		384
Actual Impact Point (Aft of Front Axle)	mm		375
Horizontal Offset (+ forward / - rearward)	mm	± 50 of Intended Impact Point	9
Vertical Offset (+ down / - up)	mm	± 20 of Intended Impact Point	15

**DATA SHEET NO. 9****MDB SUMMARY OF RESULTS**Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13**MDB SPECIFICATIONS**

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1251
Overall Length including Honeycomb Face	4023
Wheel Base of Framework Carriage	2595
CG location aft of Front Axle	1118

**MDB WEIGHTS**

	Units	Front Axle	Rear Axle	Total
Left	kg	401.8	298.0	699.8
Right	kg	376.9	291.6	668.5
Ratio	%	56.9%	43.1%	100.0%
Totals	kg	778.7	589.6	1368.3

**SPEED AND IMPACT DATA**

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	61.50
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	61.53
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	89.8
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	62.9
MDB Crabbed Angle to MDB Forward Line of Motion	degrees	26.0 to 28.0	27.0

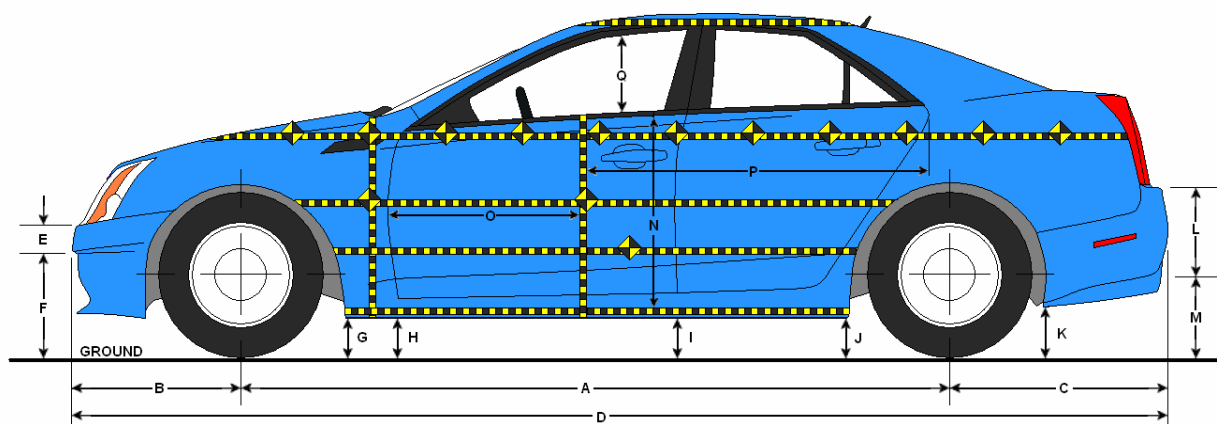
**MAXIMUM STATIC CRUSH OF HONEYCOMB FACE**

Vertical Location			From Centerline		Max. Crush (mm)
Row	Description	Height (mm)	Distance (mm)	Direction	
A	Center of Bumper	432	800	Left	242
B	Top of Bumper	533	800	Left	162
C	Mid Level	686	800	Left	157
D	Top of Stack	813	800	Left	217

## DATA SHEET NO. 10

### TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan    NHTSA No. O20145801  
 Test Program: NCAP MDB Side Impact Test    Test Date: 11/25/13



**LEFT SIDE VIEW**

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

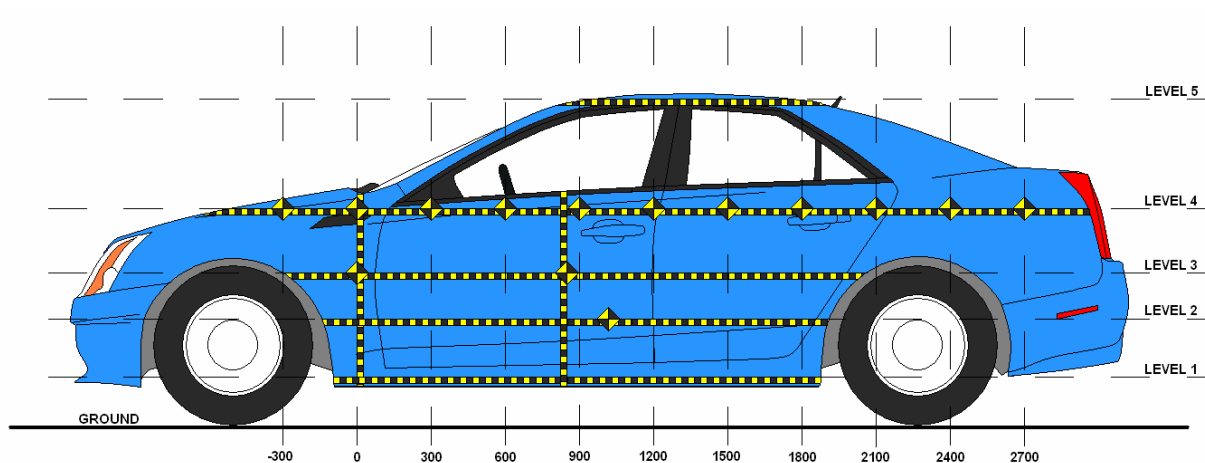
Code	Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2652	2636	-16
B	Front Axle to FSOV	878	900	22
C	Rear Axle to RSOV	1105	1108	3
D	Total Length at Centerline	4636	4644	8
E	Front Bumper Thickness	130	131	1
F	Front Bumper Bottom to Ground	423	416	-7
G	Sill Height at Front Wheel Well	244	296	52
H	Sill Height at Front Door Leading Edge	230	292	62
I	Sill Height at B-Pillar	244	280	36
J1	Sill Height at Rear Wheel Well	200	229	29
J2	Pinch Weld Height at Rear Wheel Well	166	177	11
K	Sill Height Aft of Rear Wheel Well	232	240	8
L	Rear Bumper Thickness	173	173	0
M	Rear Bumper Bottom to Ground	446	452	6
N	Sill Height to Bottom of Front Window Sill	609	609	0
O	Front Door Leading Edge to Impact CL	754	741	-13
P	Rear Door Trailing Edge to Impact CL	1383	1333	-50
Q	Front Window Opening	439	438	-1
R	Right Side Length	3122	3129	7
S	Left Side Length	3126	3144	18
T	Vehicle Width at B-Pillar	1783	1635	-148

All measurements in mm with tolerance of  $\pm 3$ mm

## DATA SHEET NO. 11

### TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan    NHTSA No. O20145801  
 Test Program: NCAP MDB Side Impact Test    Test Date: 11/25/13



**LEFT SIDE VIEW**

### MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	225	71	1050
2	Occupant H-Point	482	232	1650
3	Mid-Door	605	249	1800
4	Window Sill	873	197	1800
5	Window Top	1362	16	1650

**DATA SHEET NO. 11 ... (CONTINUED)**

**TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS**

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801

Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13

**EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL**

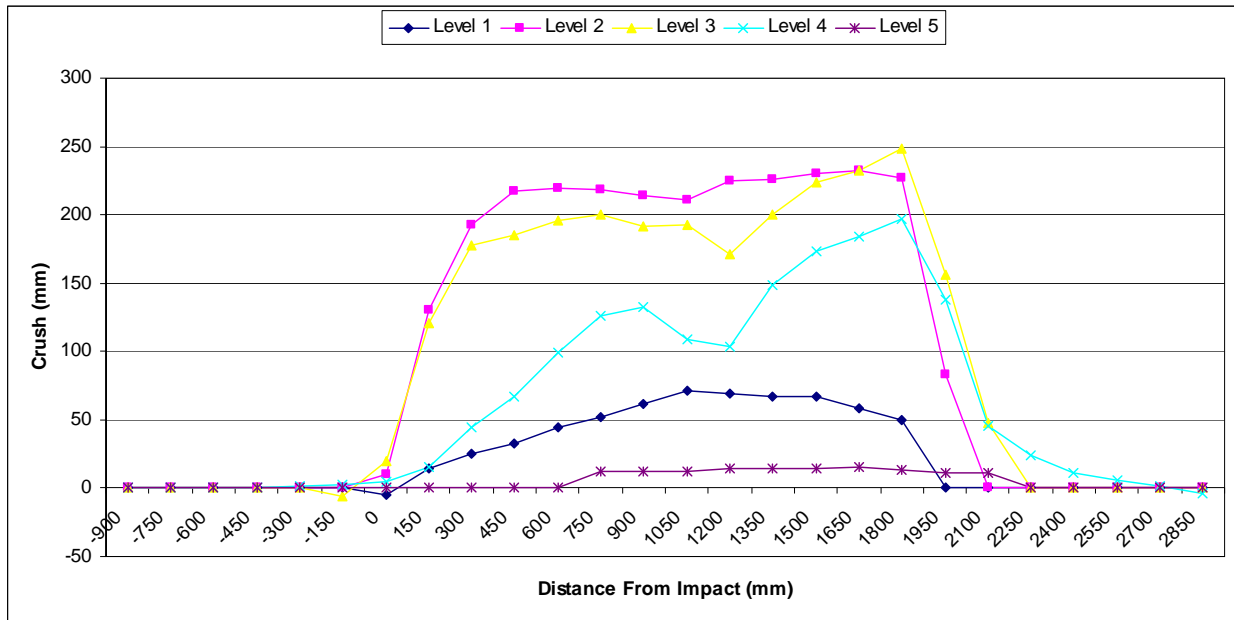
	Pre-Test (mm)					Post-Test (mm)					Difference (mm)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600															
-450															
-300				750					751					1	
-150			620	726				614	729				-6	3	
0	646	624	628	708		641	634	648	713		-5	10	20	5	
150	644	636	629	697		658	766	750	712		14	130	121	15	
300	639	634	626	686		664	827	804	731		25	193	178	45	
450	636	632	624	677		669	849	809	744		33	217	185	67	
600	633	631	622	668		677	850	818	767		44	219	196	99	
750	632	630	621	662	925	684	848	821	788	937	52	218	200	126	12
900	631	630	621	659	923	693	844	813	791	935	62	214	192	132	12
1050	631	631	621	655	924	702	842	814	764	936	71	211	193	109	12
1200	634	630	621	653	926	703	855	792	757	940	69	225	171	104	14
1350	636	632	623	653	928	703	858	823	802	942	67	226	200	149	14
1500	639	634	626	654	929	706	864	850	827	943	67	230	224	173	14
1650	645	637	628	657	930	703	869	860	841	946	58	232	232	184	16
1800	645	639	632	659	933	695	866	881	856	946	50	227	249	197	13
1950		622	627	663	935		705	783	801	946		83	156	138	11
2100			618	669	943			666	715	954			48	46	11
2250				678					702					24	
2400				687					698					11	
2550				698					704					6	
2700				712					714					2	
2850				732					728					-4	

DATA SHEET NO. 11 ... (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801

Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13

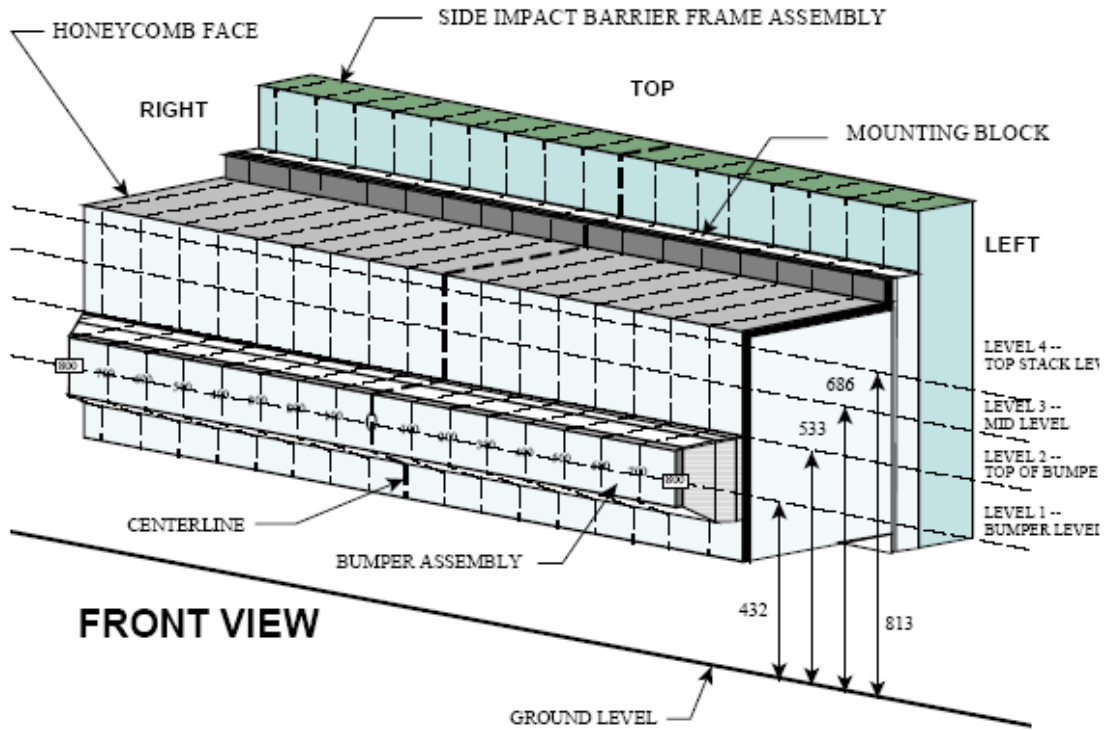


**DATA SHEET NO. 12**

**MDB EXTERIOR STATIC CRUSH MEASUREMENTS**

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801

Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13



NOTE: Dimensions are shown in millimeters, mm

**DEFORMABLE BARRIER STATIC CRUSH**

Stack Level	Distance Right of Center								C/L	Distance Left of Center							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
1	227	204	202	201	199	199	191	185	187	184	182	186	184	181	187	201	242
2	121	119	119	114	107	109	112	112	106	104	112	115	119	121	122	129	162
3	60	51	57	61	77	98	117	115	85	69	62	64	72	87	109	127	157
4	53	52	55	65	92	135	157	139	112	82	87	100	101	127	147	178	217

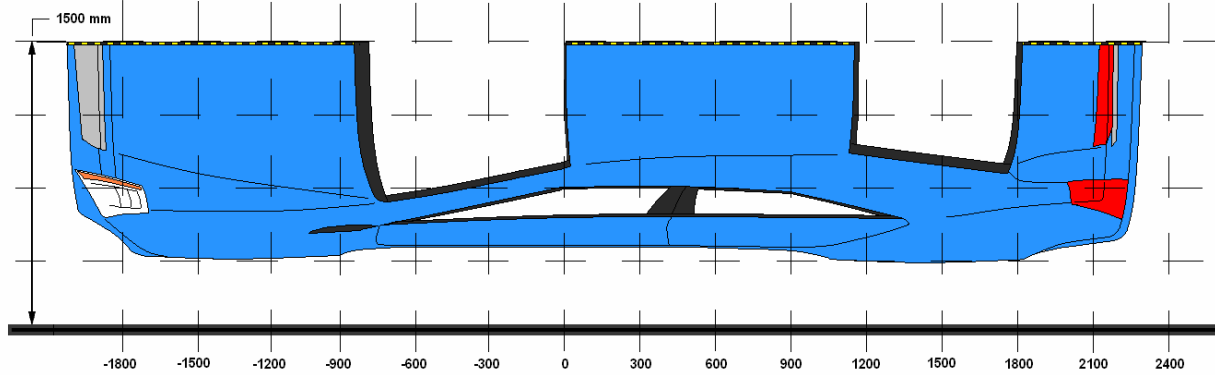
All dimensions in millimeters.

**DATA SHEET NO. 13**

**VEHICLE AND MDB DAMAGE PROFILE DISTANCES**

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801

Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13



**VEHICLE DAMAGE PROFILE DISTANCES**

DPD	Distance From Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Crush (mm)
1	2850	4	732	728	-4
2	2250	4	678	702	24
3	1650	2	637	869	232
4	900	1	631	702	71
5	300	2	634	827	193
6	-300	4	750	751	1

**MDB DAMAGE PROFILE DISTANCES**

DPD	From MDB Centerline		Level	Crush (mm)
	Distance (mm)	Direction		
1	800	Left	1	242
2	500	Left	1	181
3	200	Left	1	182
4	200	Right	1	191
5	500	Right	1	201
6	800	Right	1	227

**DATA SHEET NO. 14**

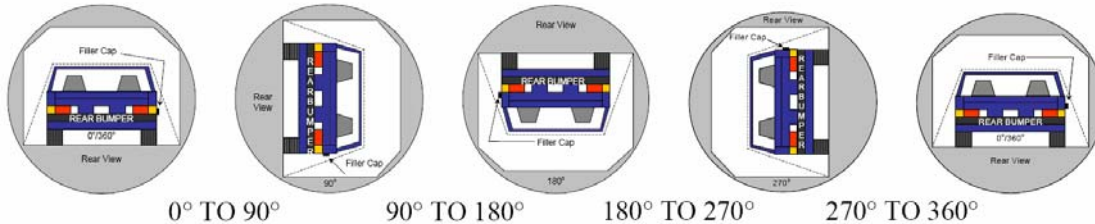
**FMVSS NO. 301 STATIC ROLLOVER RESULTS**

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801

Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13

Temperature at Time of Impact: 16.1° C Test Time: 3:00 PM

- A. From impact until vehicle motion ceases: 0 oz.  
(Maximum allowable = 1 oz.)
- B. For the 5 minute period after motion ceases: 0 oz.  
(Maximum allowable = 5 oz.)
- C. For the following 25 minutes: 0 oz.  
(Maximum allowable = 1 oz./minute)
- D. Spillage Details: There was no Stoddard solvent spillage.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**SOLVENT COLLECTION TIME TABLE IN SECONDS**

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	84	300	384
90° To 180°	87	300	387
180° To 270°	86	300	386
270° To 360°	85	300	385

**FMVSS 301 SPILLAGE TABLE**

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

**SOLVENT SPILLAGE LOCATION TABLE**

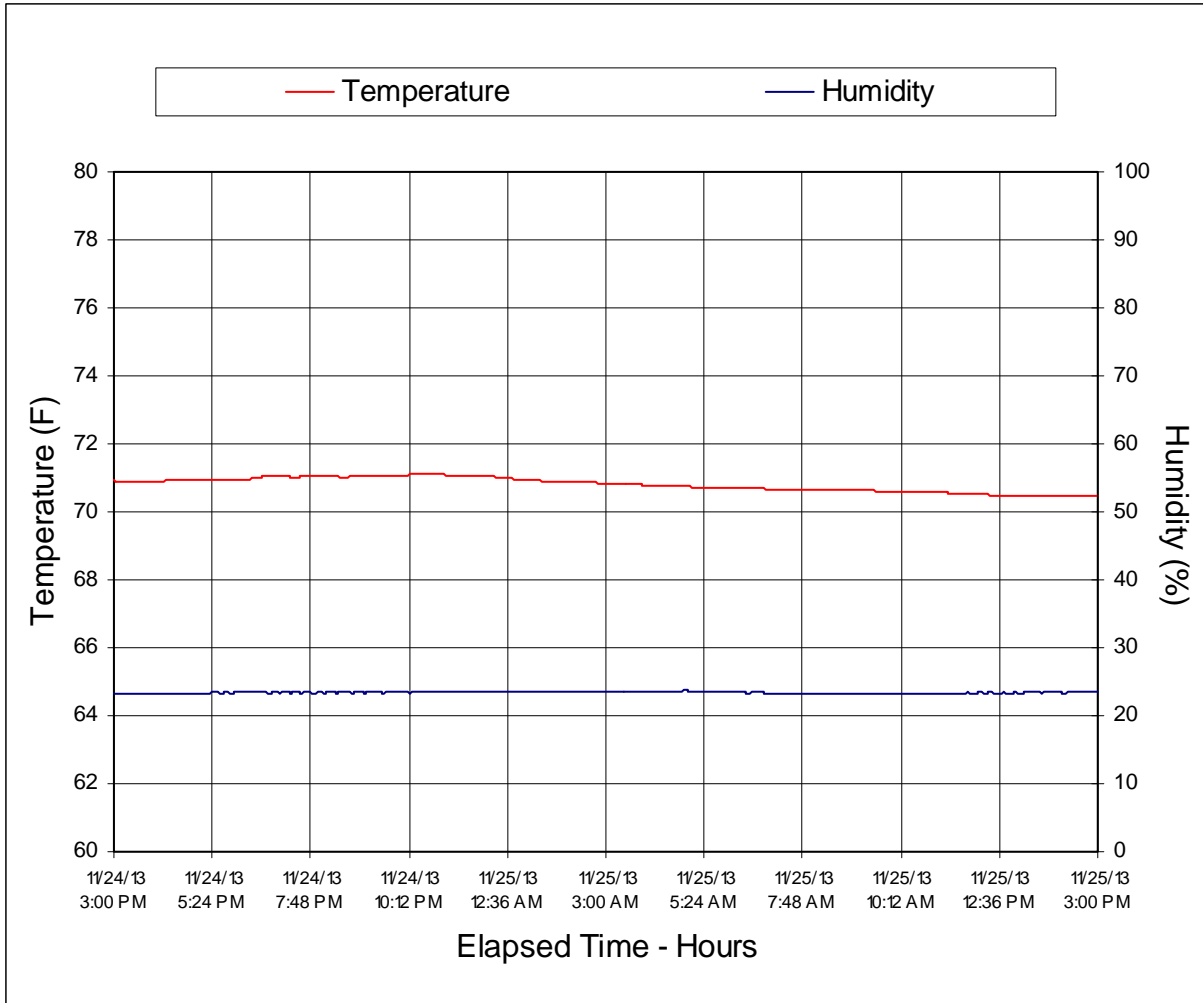
Test Phase	Spillage Location
0° To 90°	N/A
90° To 180°	N/A
180° To 270°	N/A
270° To 360°	N/A

**DATA SHEET NO. 15**

**DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION**

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan NHTSA No. O20145801

Test Program: NCAP MDB Side Impact Test Test Date: 11/25/13



**APPENDIX A  
PHOTOGRAPHS**

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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

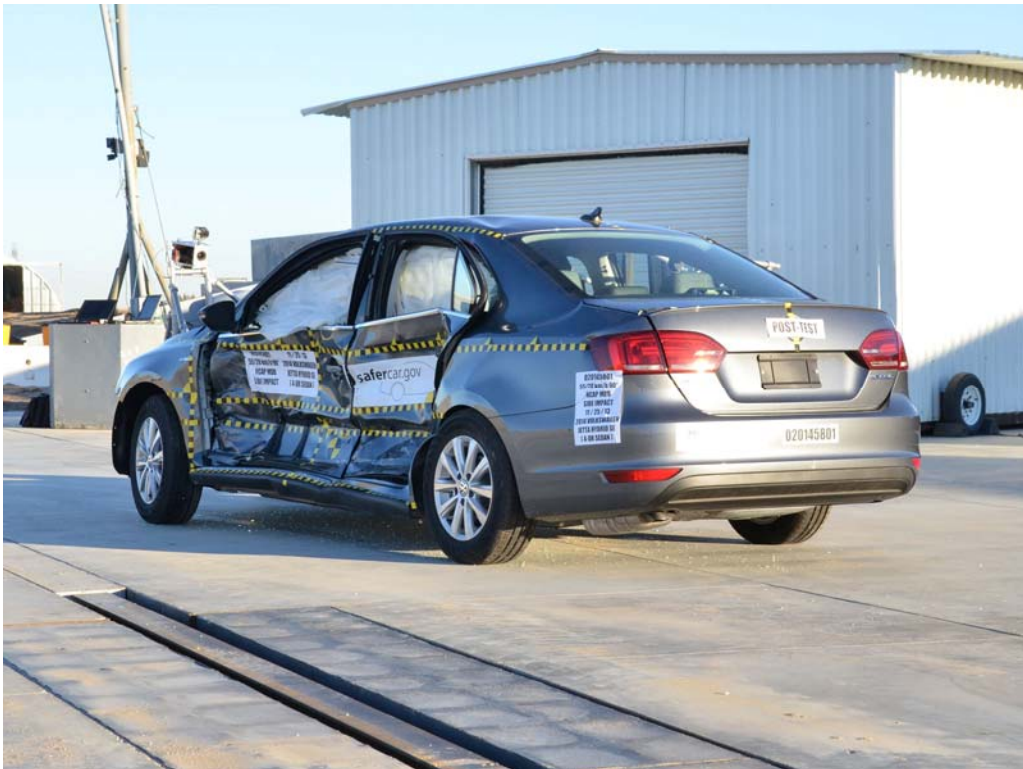


FIGURE 10. Post-Test Left Rear  $\frac{3}{4}$  View of Test Vehicle



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

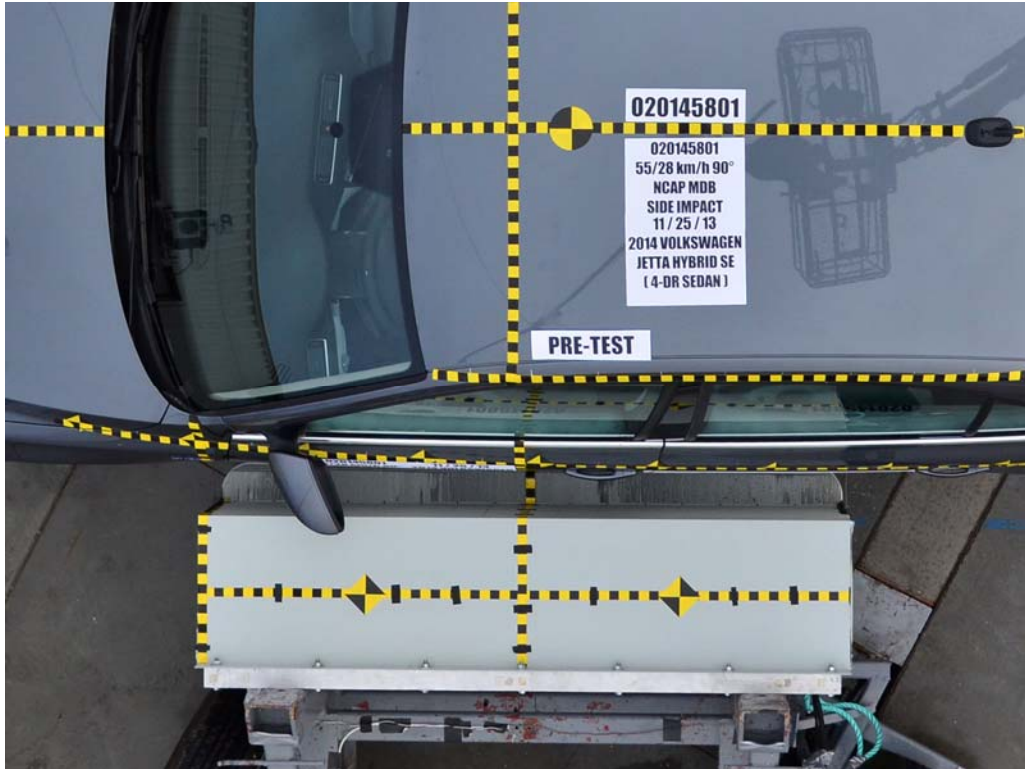


FIGURE 15. Pre-Test Overhead View of Test Area

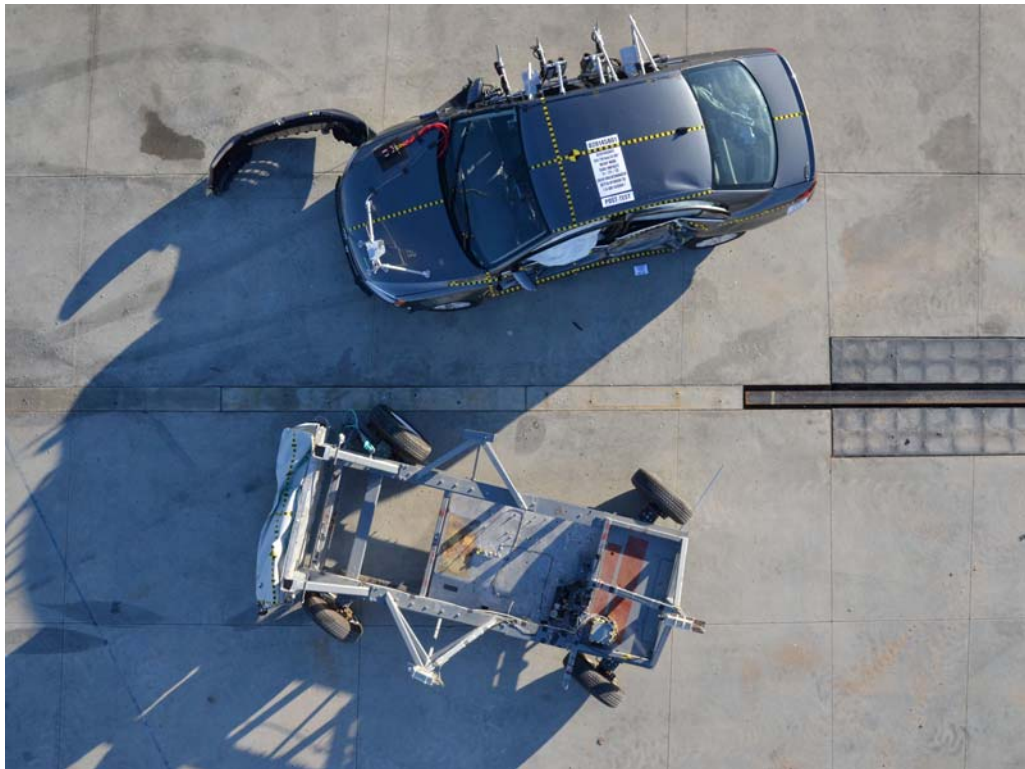


FIGURE 16. Post-Test Overhead View of Test Area



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



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



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



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



FIGURE 21. Pre-Test Left Front Door Latch Close-Up



FIGURE 22. Post-Test Left Front Door Latch Close-Up



FIGURE 23. Pre-Test Left Rear Door Latch Close-Up



FIGURE 24. Post-Test Left Rear Door Latch Close-Up



FIGURE 25. Pre-Test Front Close-Up View of Driver Dummy



FIGURE 26. Post-Test Front Close-Up View of Driver Dummy



FIGURE 27. Pre-Test Left Side View of Driver Dummy  
Showing Belt and Chalking



FIGURE 28. Pre-Test Left Side View of Driver Dummy Shoulder and Door Top View



FIGURE 29. Post-Test Left Side View of Driver Dummy Shoulder and Door Top View

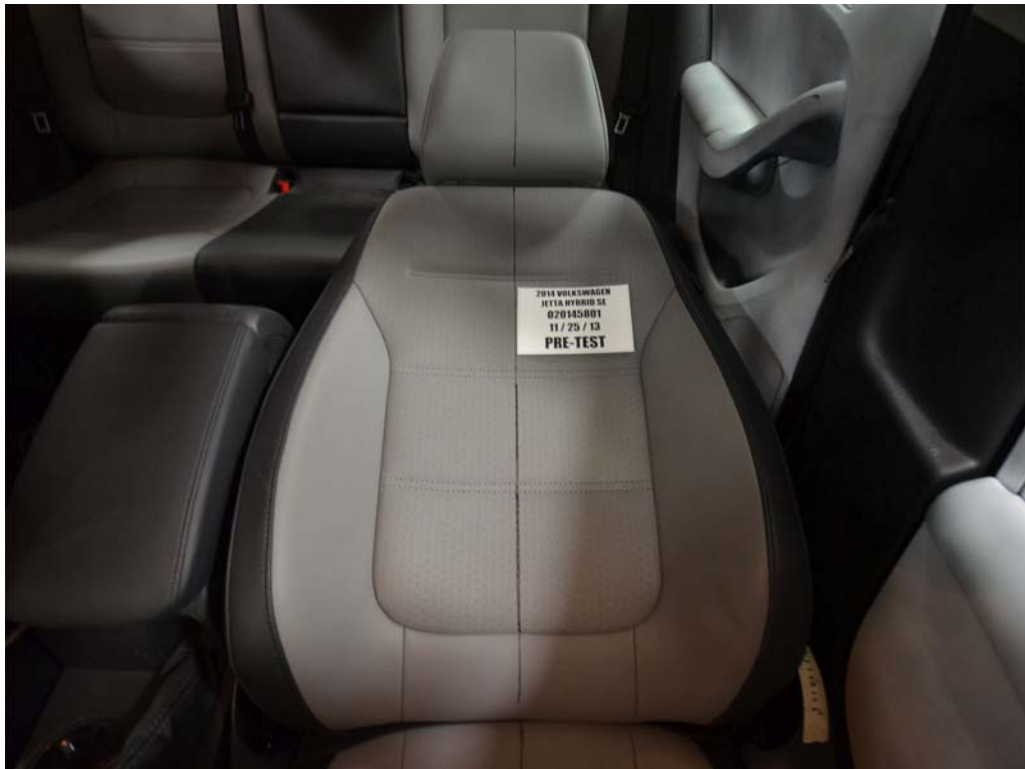


FIGURE 30. Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning



FIGURE 31. Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint



FIGURE 32. Pre-Test Overhead View of Driver Seat Pan Prior to Dummy Positioning



FIGURE 33. Pre-Test Overhead View of Driver Dummy Thighs on Seat Pan



FIGURE 34. Pre-Test Placement of Driver Dummy's Feet



FIGURE 35. Pre-Test View of Belt Anchorage for Driver Dummy



FIGURE 36. Pre-Test Left Side View of Steering Wheel



FIGURE 37. View of Disengaged Parking Brake



FIGURE 38. Pre-Test View of Parking Brake

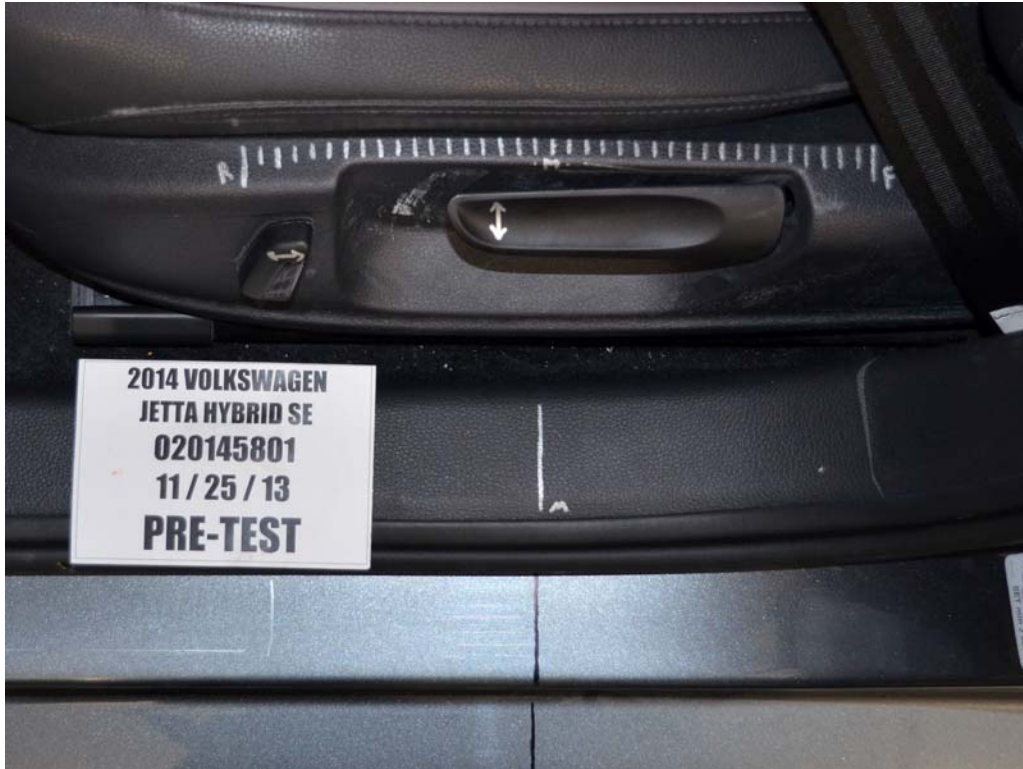


FIGURE 39. Pre-Test Close-Up Left Side View of Driver Seat Track



FIGURE 40. Pre-Test Close-Up Left Side View of Driver Seat Back



FIGURE 41. Pre-Test Close-Up View of Driver Seat Back or Head Restraint



FIGURE 42. Pre-Test Driver Dummy and Door Clearance View



FIGURE 43. Post-Test Driver Dummy and Door Clearance View



FIGURE 44. Pre-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



FIGURE 45. Post-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



FIGURE 46. Pre-Test Driver Inner Door Panel View



FIGURE 47. Post-Test Driver Inner Door Panel View  
Showing Driver Dummy Contact Locations

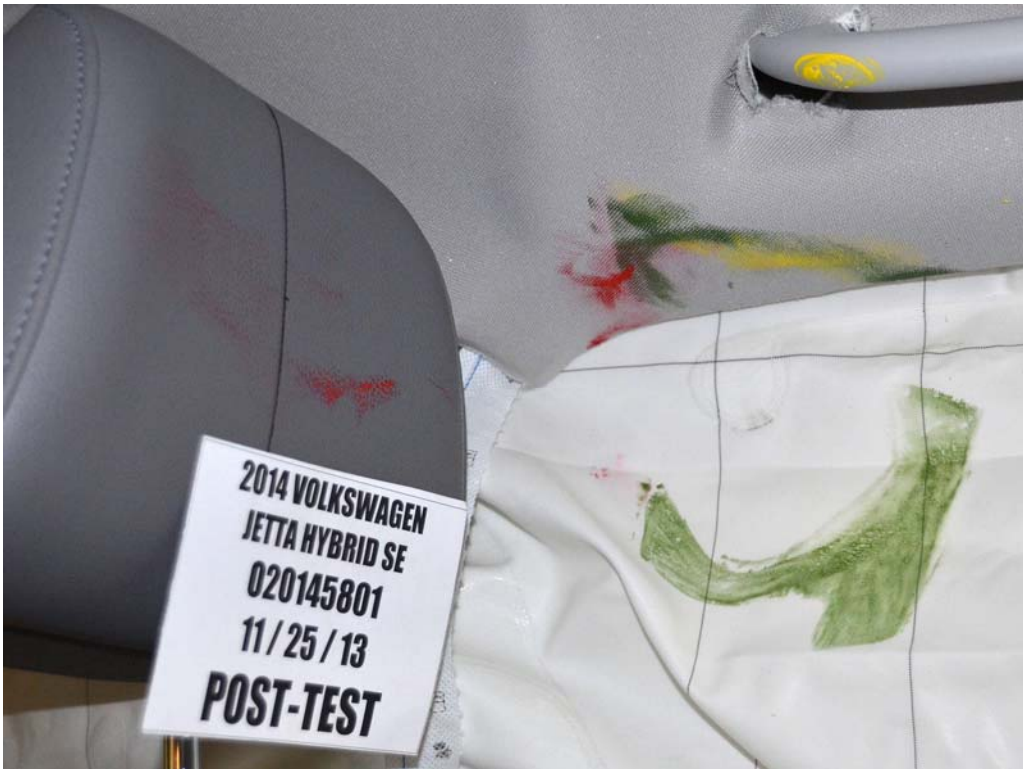


FIGURE 48. Post-Test Driver Dummy Close-Up Head Contact with Vehicle View

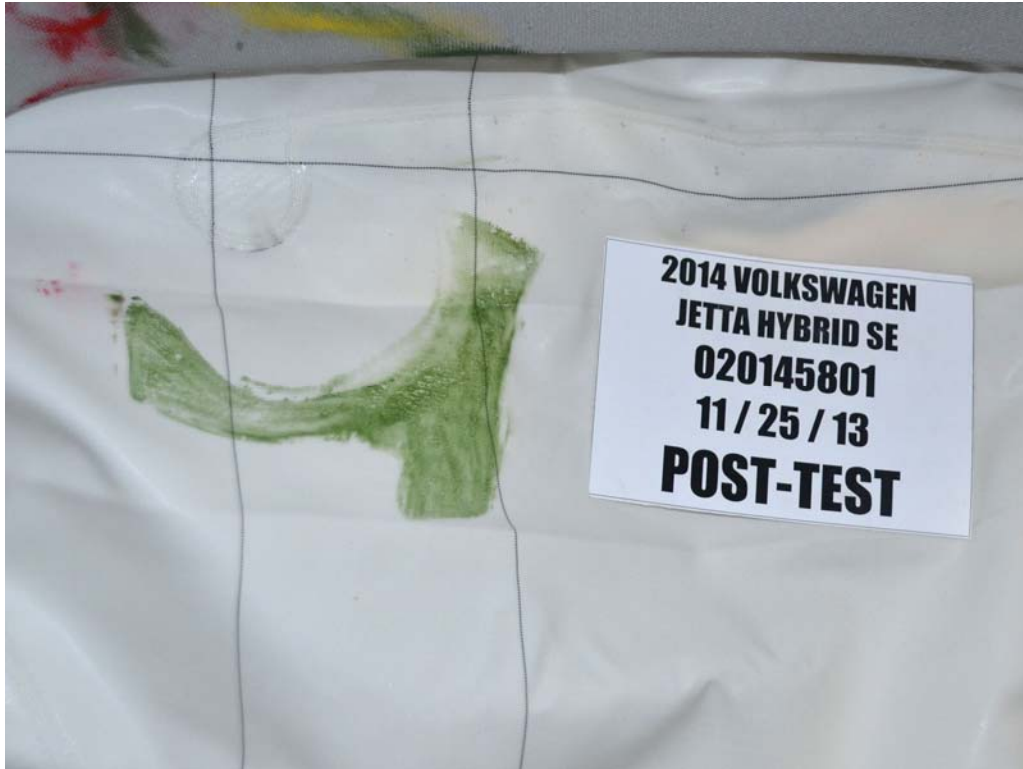


FIGURE 49. Post-Test Driver Dummy Close-Up Head Contact with Side Airbag View

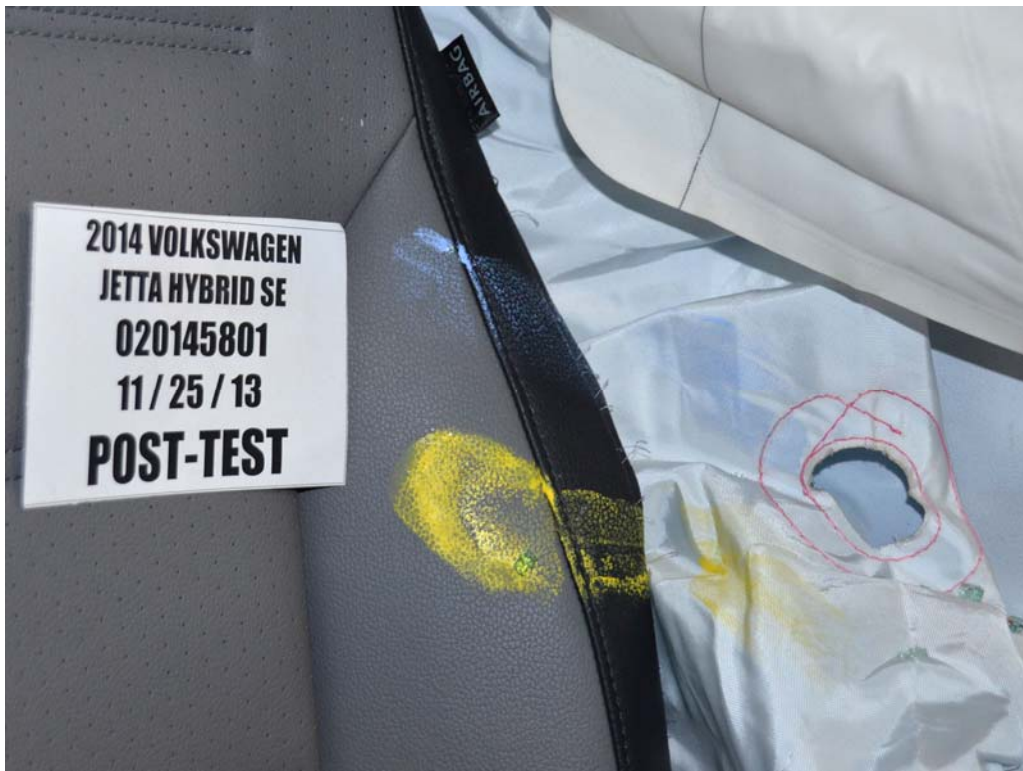


FIGURE 50. Post-Test Driver Dummy Close-Up Torso Contact with Vehicle Interior View

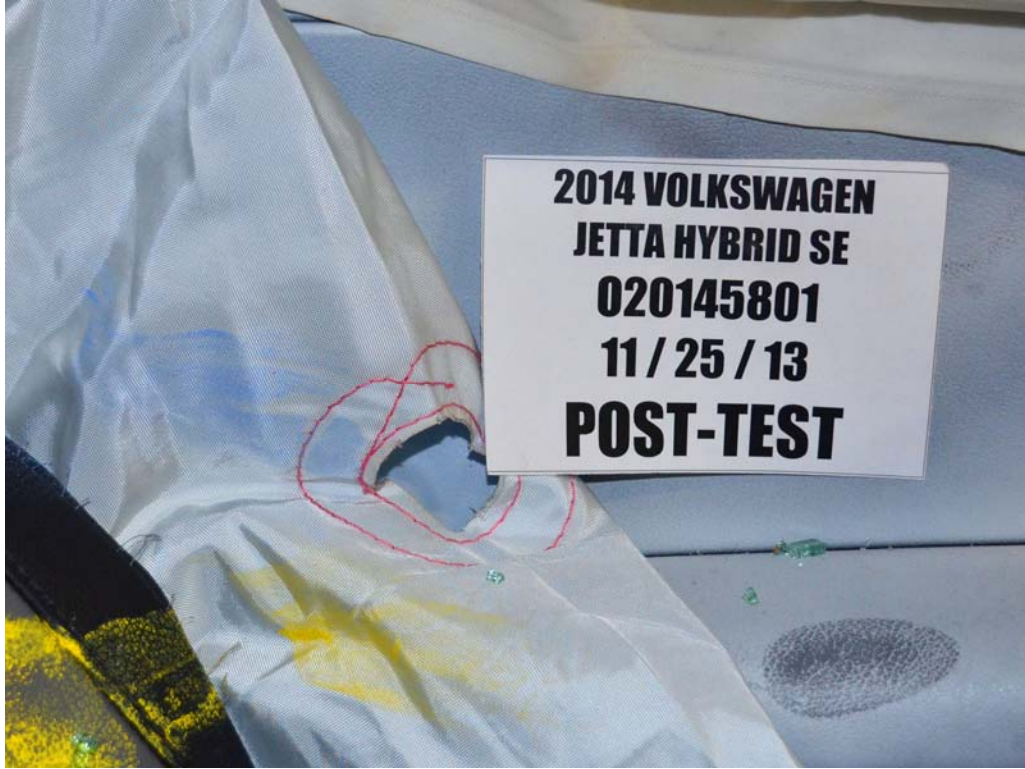


FIGURE 51. Post-Test Driver Dummy Close-Up Torso Contact with Side Airbag View

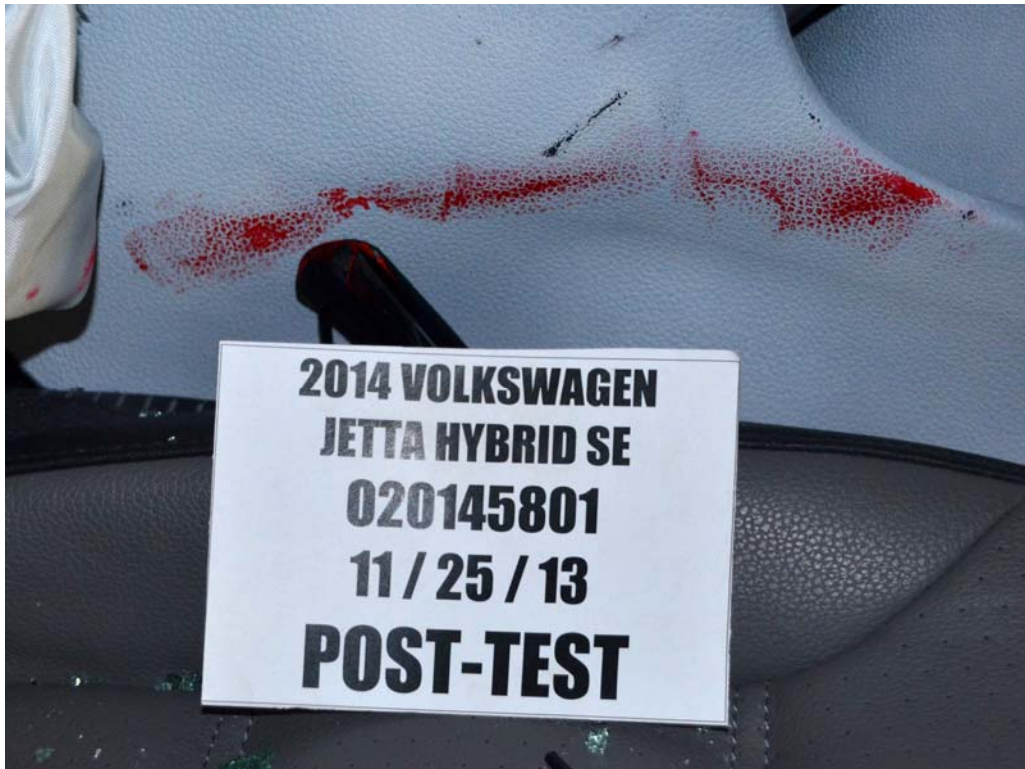


FIGURE 52. Post-Test Driver Dummy Close-Up Pelvis Contact View

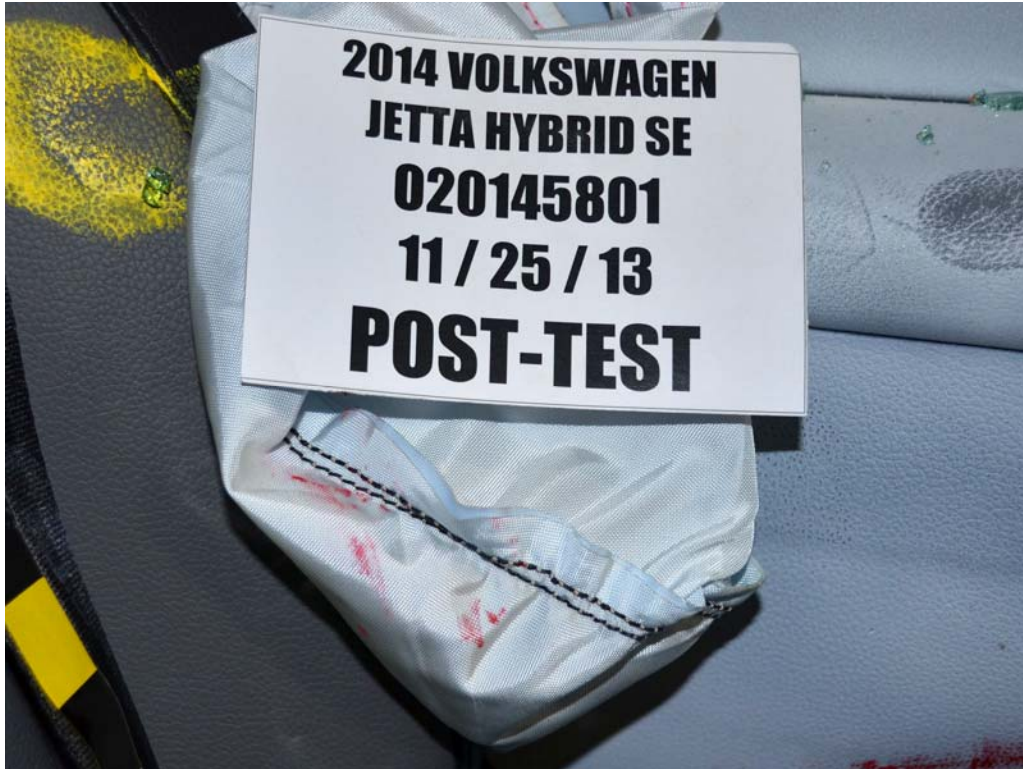


FIGURE 53. Post-Test Driver Dummy Close-Up Pelvis Contact with Side Airbag View

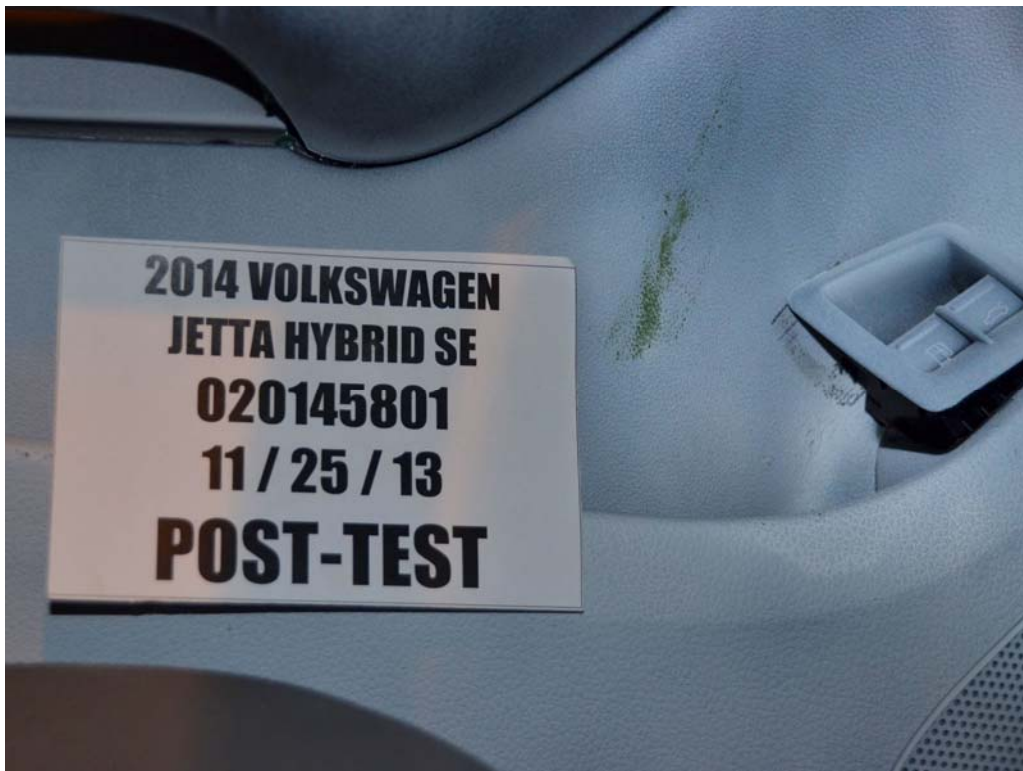


FIGURE 54. Post-Test Driver Dummy Close-Up Knee Contact View



FIGURE 55. Pre-Test Left Side View of Rear Passenger Dummy Showing Belt and Chalking



FIGURE 56. Pre-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View



FIGURE 57. Post-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View



FIGURE 58. Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning



FIGURE 59. Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head Restraint



FIGURE 60. Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning



FIGURE 61. Pre-Test Overhead View of Passenger Dummy Thighs on Seat Pan



FIGURE 62. Pre-Test View of Rear Passenger Dummy's Neck  
Showing Position of Adjustable Neck Bracket



FIGURE 63. Pre-Test View of Rear Passenger Dummy's Head Showing Dummy's Head is Level



FIGURE 64. Pre-Test Placement of Rear Passenger Dummy's Feet



FIGURE 65. Pre-Test View of Belt Anchorage for Rear Passenger Dummy

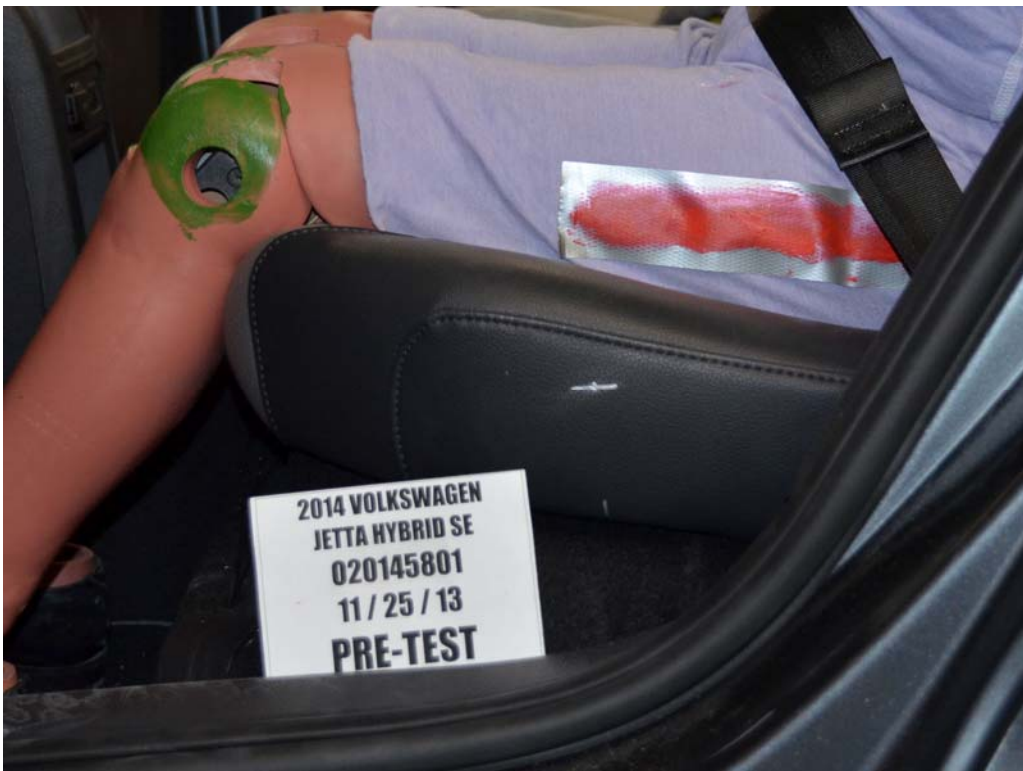


FIGURE 66. Pre-Test Close-Up Left Side View of Rear Passenger Seat Track



FIGURE 67. Pre-Test Close-Up Left Side View of Rear Passenger Seat Back



FIGURE 68. Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint



FIGURE 69. Pre-Test Rear Passenger Dummy and Door Clearance View



FIGURE 70. Post-Test Rear Passenger Dummy and Door Clearance View



FIGURE 71. Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



FIGURE 72. Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



FIGURE 73. Pre-Test Rear Passenger Inner Door Panel View



FIGURE 74. Post-Test Rear Passenger Inner Door Panel View  
Showing Rear Passenger Dummy Contact Locations



FIGURE 75. Post-Test Rear Passenger Dummy Close-Up  
Head Contact with Vehicle View

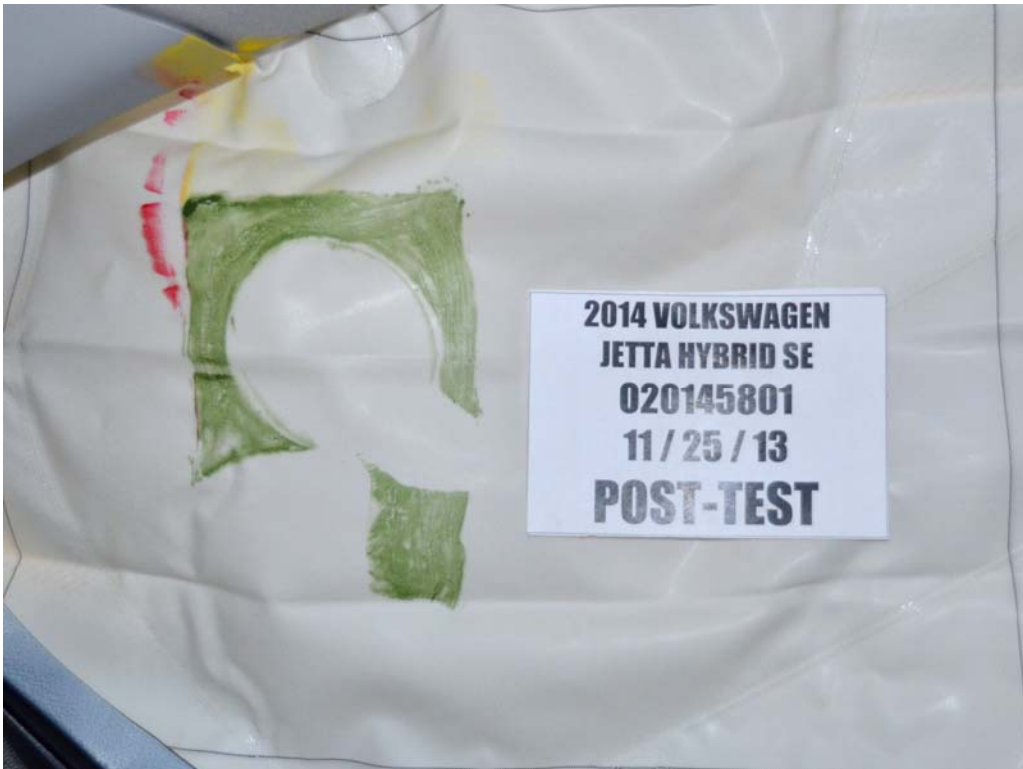


FIGURE 76. Post-Test Rear Passenger Dummy Close-Up  
Head Contact with Side Airbag View



FIGURE 77. Post-Test Rear Passenger Dummy Close-Up  
Torso Contact with Vehicle Interior View

**Photograph Not Applicable**

**Vehicle Not Equipped with  
Rear Passenger Side Airbags**

FIGURE 78. Post-Test Rear Passenger Dummy Close-Up  
Torso Contact with Side Airbag View



FIGURE 79. Post-Test Rear Passenger Dummy Close-Up  
Pelvis Contact View

Photograph Not Applicable

Vehicle Not Equipped with  
Rear Passenger Side Airbags

FIGURE 80. Post-Test Rear Passenger Dummy Close-Up  
Pelvis Contact with Side Airbag View



FIGURE 81. Post-Test Rear Passenger Dummy Close-Up Knee Contact View



FIGURE 82. Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



FIGURE 83. Post-Test View of Fuel Filler Cap or Fuel Filler Neck



FIGURE 84. Pre-Test Front View of MDB Impactor Face



FIGURE 85. Post-Test Front View of MDB Impactor Face



FIGURE 86. Pre-Test Top View of MDB Impactor Face



FIGURE 87. Post-Test Top View of MDB Impactor Face



FIGURE 88. Pre-Test Left Side View of MDB Impactor Face



FIGURE 89. Post-Test Left Side View of MDB Impactor Face



FIGURE 90. Pre-Test Right Side View of MDB Impactor Face



FIGURE 91. Post-Test Right Side View of MDB Impactor Face



FIGURE 92. Close-Up View of Vehicle's Certification Label

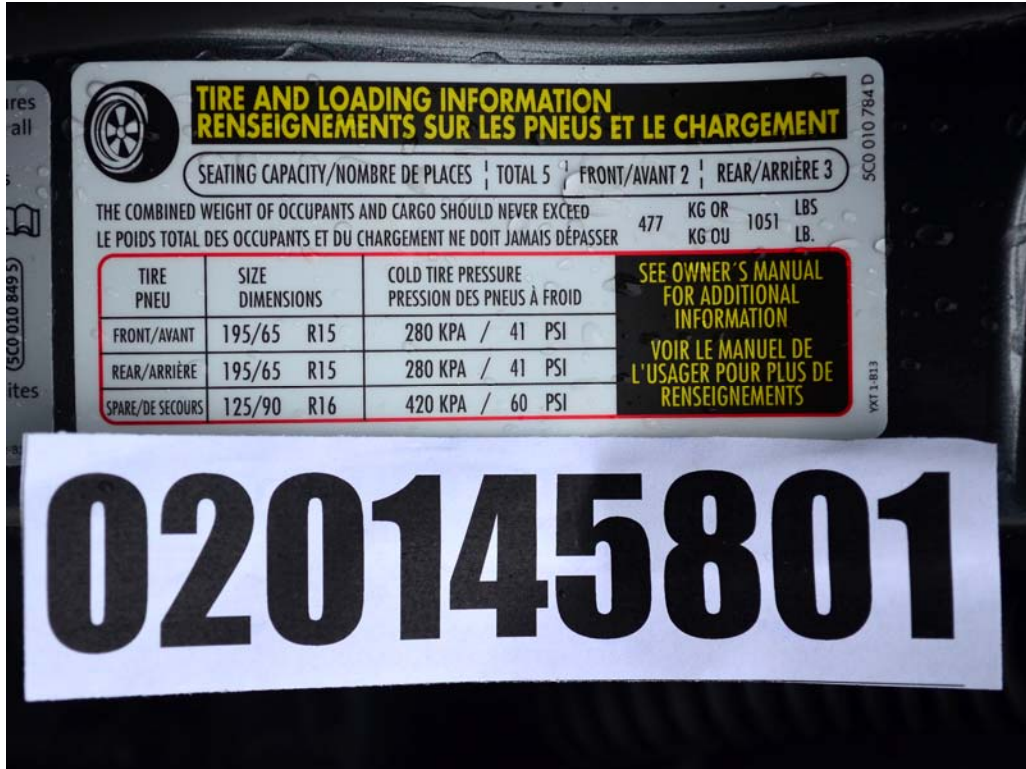


FIGURE 93. Close-Up View of Vehicle's Tire Information Placard or Label

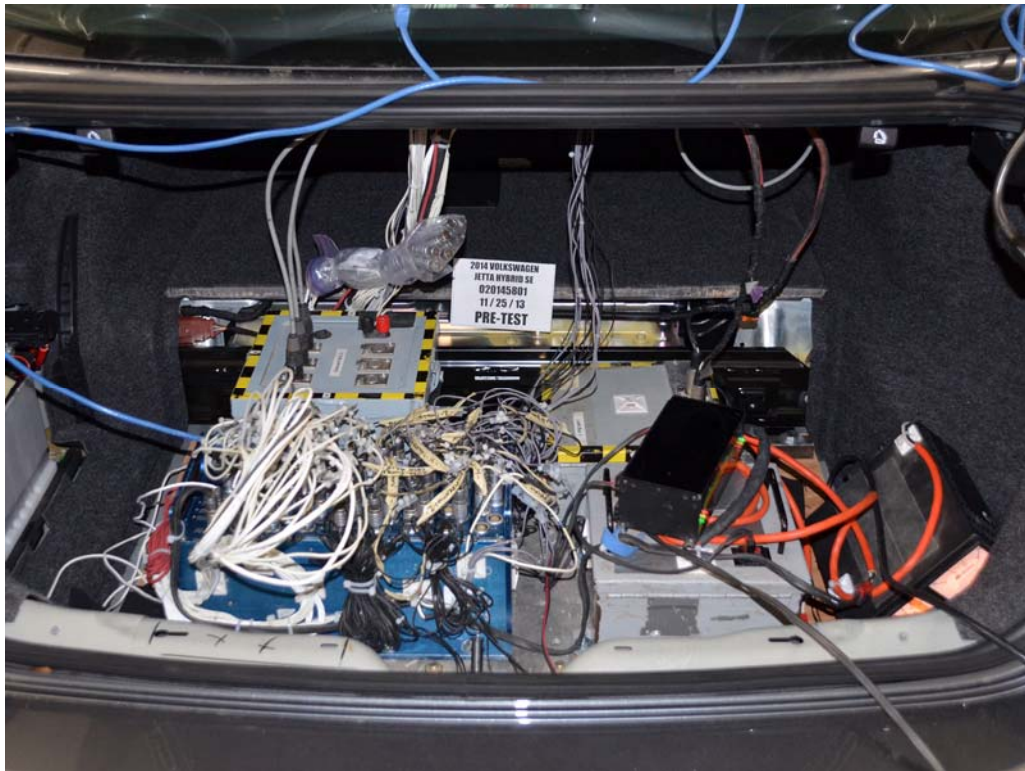


FIGURE 94. Pre-Test Ballast View



FIGURE 95. Post-Test Primary and Redundant Speed Trap Read-Out

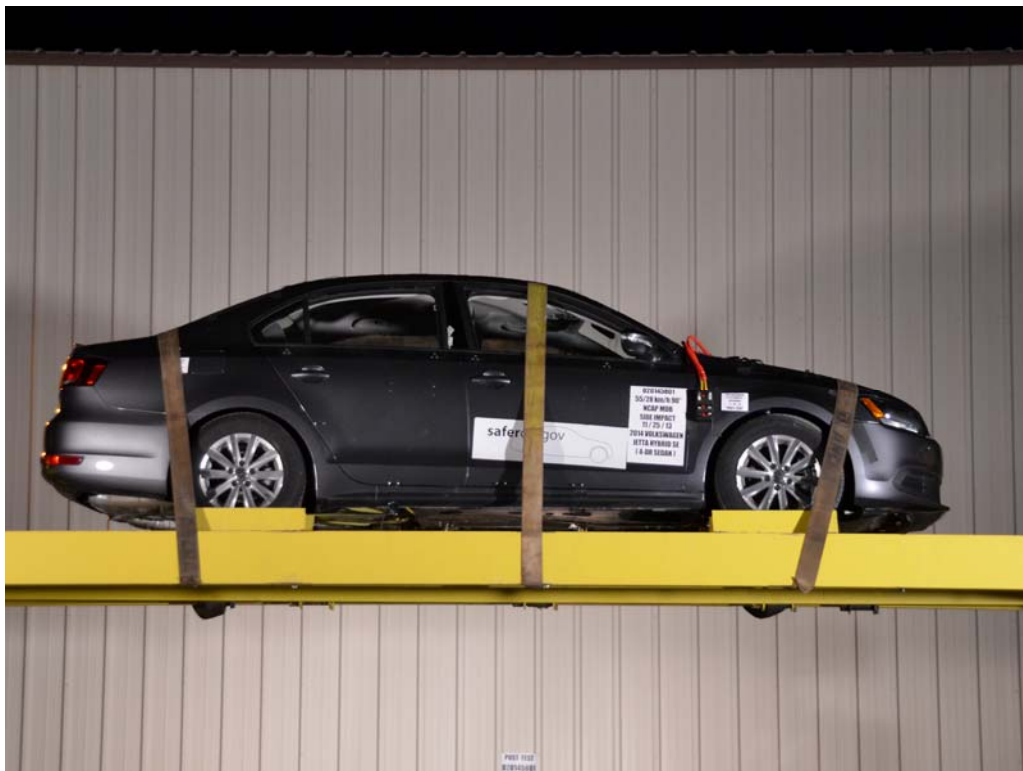


FIGURE 96. FMVSS No. 301 Static Rollover 0 Degrees





FIGURE 99. FMVSS No. 301 Static Rollover 270 Degrees



FIGURE 100. FMVSS No. 301 Static Rollover 360 Degrees



FIGURE 101. Impact Event

<b>2014 Jetta Hybrid SE</b> Exterior: Platinum Gray Metallic Exterior Interior: Titan Black Interior		Great. For The Price Of Good.	
<b>STANDARD FEATURES (unless replaced by options)</b> <b>PERFORMANCE/HANDLING</b> <ul style="list-style-type: none"> <li>1.8L Hybrid TSI engine &amp; electric motor combined output 170 horsepower</li> <li>Front Wheel Drive</li> <li>Anti-Lock Braking System (ABS)</li> <li>Anti-Slip Regulation (ASR)</li> <li>Electronic Stability Control (ESC)</li> <li>Electronic Differential Lock (EDL)</li> <li>17" alloy wheels w/ all-season tires</li> </ul> <b>SAFETY/DURABILITY</b> <ul style="list-style-type: none"> <li>Driver &amp; front passenger airbag, supplemental restraint system</li> <li>Driver &amp; front passenger side-impact supplemental restraint system</li> <li>Side Curtain Protection® head impact airbags, front &amp; rear 3-point safety belts, all seating positions</li> <li>Head restraints for all seating positions</li> <li>Lower Anchors &amp; Tethers for Children (LATCH)</li> <li>Child safety rear door locks</li> <li>Height adjustable front seating belts</li> <li>Side protection rear door beams</li> <li>Tire Pressure Monitoring System (TPMS)</li> </ul> <b>COMFORT/CONVENIENCE</b> <ul style="list-style-type: none"> <li>Frontview XM navigation radio</li> <li>Bluetooth® Satellite Radio (limited time subscription included)</li> <li>Steering Control Bluetooth® (SCB) w/ Bluetooth</li> <li>Bluetooth® mobile telephone connectivity</li> <li>Keyless access w/ push button start</li> <li>Quiet zone cruise control</li> <li>1700 computer</li> <li>Leatherette seating surfaces</li> <li>Heater power front seats</li> <li>40/60 split folding rear seat</li> <li>Climate control</li> <li>Height adjustable, telescoping steering column</li> <li>Automatic front, center airvent</li> <li>LED light signature</li> <li>Standardized safety mirrors</li> <li>Power windows w/ auto-pause function</li> <li>Power, heightable exterior mirrors w/ turn signal indicators</li> <li>Leatherette steering wheel, with audio &amp; hand brake lever</li> <li>Adjustable instrument front seats</li> <li>Front &amp; rear cupholder front seats</li> <li>Rear spoiler</li> <li>VW Car-Net® Equipped. Limited emergency services temporarily active on delivery. Full list available, subscription required.</li> <li>All services subject to Terms of Service available in glove box.</li> </ul>		<b>Manufacturer's Suggested Retail Price:</b> \$27,260.00 <b>DRIVER CARE PACKAGE</b> <b>WARRANTY INFORMATION</b> <ul style="list-style-type: none"> <li>Volkswagen New Vehicle Limited Warranty</li> <li>3 years/36,000 miles (whichever occurs first)</li> <li>Powertrain Limited Warranty</li> <li>5 years/60,000 miles (whichever occurs first)</li> <li>8 year/100,000 miles (whichever occurs first) specific parts Limited Warranty against Corrosion/Perforation</li> <li>12 year/unlimited mileage</li> </ul> Please see your dealer for a copy of the Volkswagen warranty booklet for details. <b>4-HOUR ROADSIDE ASSISTANCE</b> <ul style="list-style-type: none"> <li>3 years/36,000 miles (whichever occurs first) (Emergency, Jump Starts, Tire Changes, Oil or Fuel, and Lock-Out) Provided by a third party supplier.</li> </ul> <b>VOLKSWAGEN CAREFREE MAINTENANCE</b> <ul style="list-style-type: none"> <li>Scheduled maintenance services described in the Volkswagen Maintenance booklet are covered at no charge for 2 years/24,000 miles (whichever occurs first).</li> </ul>	
<b>PACKAGES/OPTIONS</b> Platinum Gray Metallic Exterior Titan Black Interior Four sunroof 7-Speed DSG® Auto. Transmission w/ Tiptronic®		<b>EPA DOT Fuel Economy and Environment</b> Gasoline Vehicle <b>Fuel Economy</b> <b>45</b> <b>42</b> <b>48</b> <b>MPG</b> Combined city/hwy city highway 2.2 gallons per 100 miles Compact Cars range from 14 to 106 MPG. The best vehicle rates 121 MPG. <b>You Save \$5,250</b> in fuel costs over 5 years compared to the average new vehicle. <b>Annual fuel COST \$1,250</b> <b>Fuel Economy &amp; Greenhouse Gas Rating</b> <b>10</b> Best This vehicle emits 200 grams of CO <sub>2</sub> per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also emits emissions. Learn more at <a href="http://fuel-economy.gov">fuel-economy.gov</a> . Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 23 MPG and costs \$11,500 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$3.75 per gallon. MPGs in miles per gallon; gallon equivalent. Vehicle emissions and a non-representative amount of additional mileage and driving. <b>GOVERNMENT 5-STAR SAFETY RATINGS</b> <b>Overall Vehicle Score Not Rated</b> Based on the combined ratings of Frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight. <b>Frontal Crash</b> Driver Passenger <b>★★★★</b> Based on the risk of injury in a frontal impact. <b>Side Crash</b> Front Seat Rear Seat <b>Not Rated</b> Based on the risk of injury in a side impact. <b>Rollover</b> <b>★★★★</b> Based on the risk of rollover in a single-vehicle crash. Star ratings range from 1 to 5 stars (★★★★★) with 5 being the highest. Source: National Highway Traffic Safety Administration (NHTSA). <a href="http://www.safercar.gov">www.safercar.gov</a> or 1-888-327-4238	
<b>PARTS CONTENT INFORMATION</b> FOR VEHICLES IN THIS CARLINE: U.S./CANADIAN PARTS CONTENT: 16% MAJOR SOURCES OF FOREIGN PARTS CONTENT: GERMANY: 45% MEXICO: 19% FOR THIS VEHICLE: FINAL ASSEMBLY POINT: PUEBLA, MEXICO COUNTRY OF ORIGIN: GERMANY ENGINE: GERMANY TRANSMISSION: GERMANY NOTE: PARTS CONTENT DOES NOT INCLUDE FINAL ASSEMBLY, DISTRIBUTION OR OTHER NON-PARTS COSTS.		Total Price: \$28,115.00 Fuel, license, title fees, taxes and dealer-installed accessories are not included.	

FIGURE 102. Monroney Label

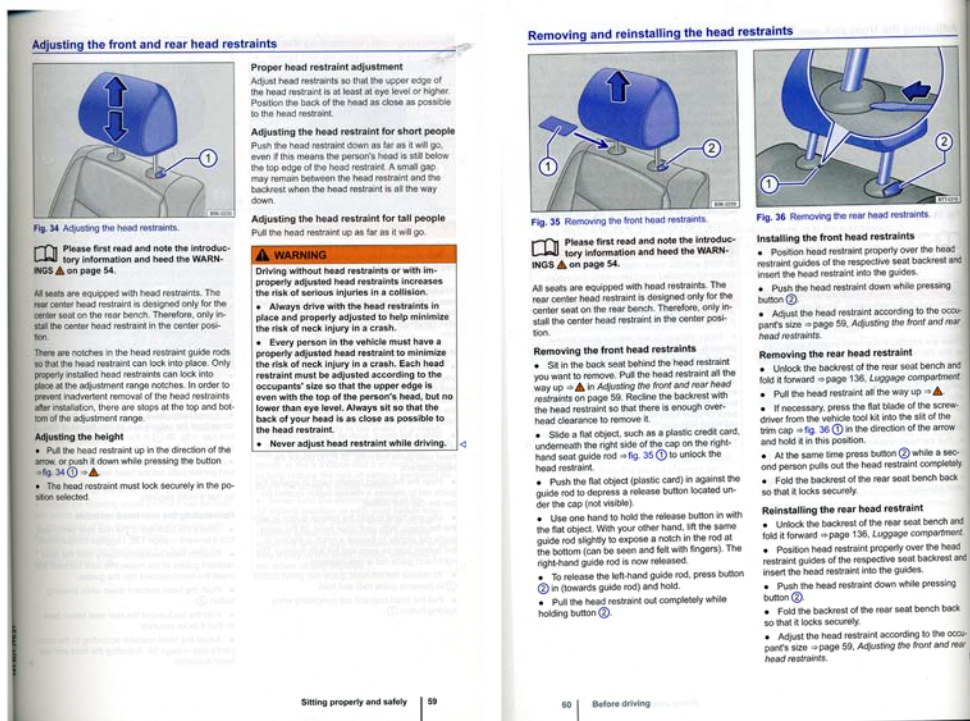


FIGURE 103. Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

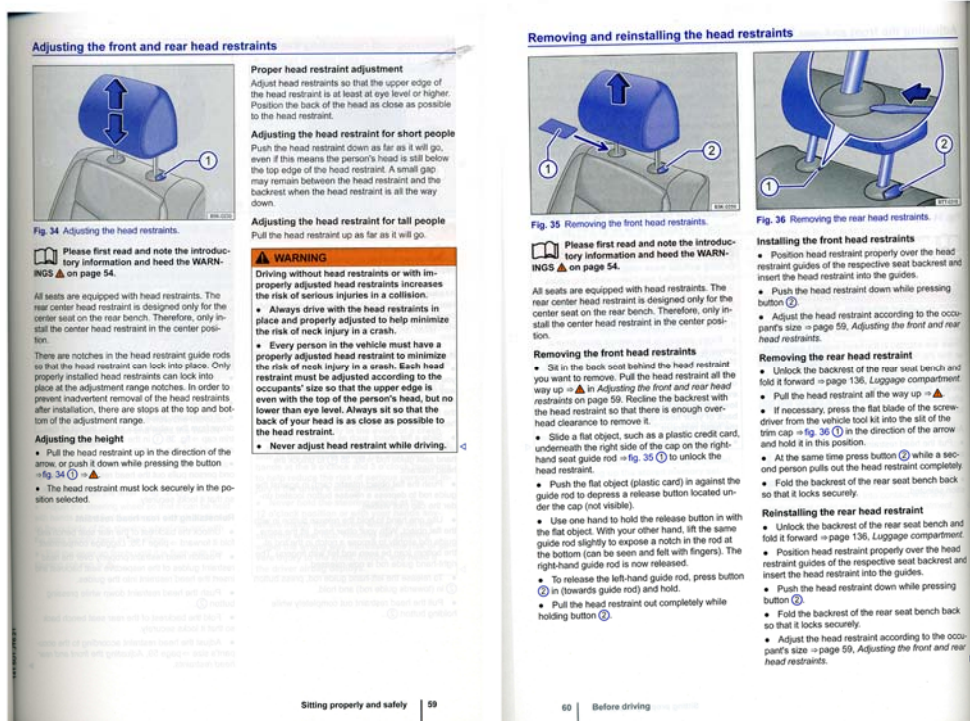


FIGURE 104. Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

**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 Upper Thorax Rib Deflection (Y) vs. Time	B-2
6	Driver Middle Thorax Rib Deflection (Y) vs. Time	B-2
7	Driver Lower Thorax Rib Deflection (Y) vs. Time	B-2
8	Driver Thorax Rib Deflection Maximum vs. Time	B-2
9	Driver Anterior Abdominal Force (Y) vs. Time	B-3
10	Driver Middle Abdominal Force (Y) vs. Time	B-3
11	Driver Posterior Abdominal Force (Y) vs. Time	B-3
12	Driver Total Abdominal Force (Y) vs. Time	B-3
13	Driver Pubic Symphysis Force (Y) vs. Time	B-4
14	Passenger Head Acceleration (X) vs. Time Primary	B-5
15	Passenger Head Acceleration (Y) vs. Time Primary	B-5
16	Passenger Head Acceleration (Z) vs. Time Primary	B-5
17	Passenger Head Resultant Acceleration Primary vs. Time	B-5
18	Passenger Lower Spine T12 Acceleration (X) vs. Time	B-6
19	Passenger Lower Spine T12 Acceleration (Y) vs. Time	B-6
20	Passenger Lower Spine T12 Acceleration (Z) vs. Time	B-6
21	Passenger Lower Spine T12 Resultant Acceleration vs. Time	B-6
22	Passenger Iliac Force on Impact Side (Y) vs. Time	B-7
23	Passenger Acetabulum Force on Impact Side (Y) vs. Time	B-7
24	Passenger Total Pelvic Force on Impact Side (Y) vs. Time	B-7

**The following additional data for this test can be obtained from the Research and Development section of the NHTSA website ([www.NHTSA.dot.gov](http://www.NHTSA.dot.gov))**

### Additional Driver & Passenger Dummy Instrumentation Data

Driver Lower Spine T12 Acceleration (X)

Driver Lower Spine T12 Acceleration (Y)

Driver Lower Spine T12 Acceleration (Z)

Passenger Upper Thorax Rib Deflection (Y)

Passenger Middle Thorax Rib Deflection (Y)

Passenger Lower Thorax Rib Deflection (Y)

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

### **Vehicle Instrumentation Data**

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

### **MDB Instrumentation Data**

MDB Center of Gravity Acceleration (X)

MDB Center of Gravity Acceleration (Y)

MDB Center of Gravity Acceleration (Z)

MDB Rear Acceleration (X)

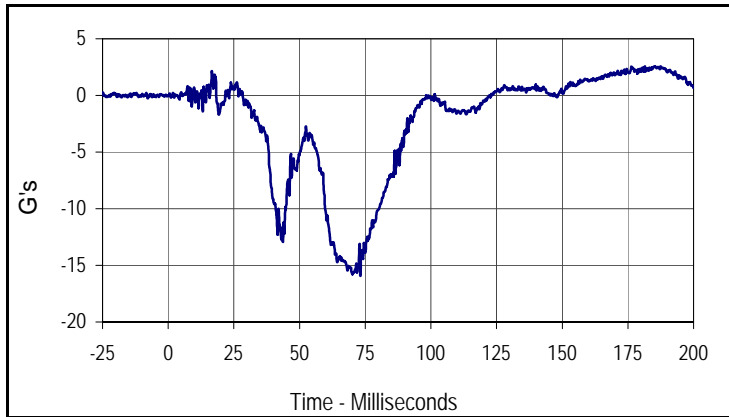
MDB Rear Acceleration (Y)

Left MDB Contact Switch

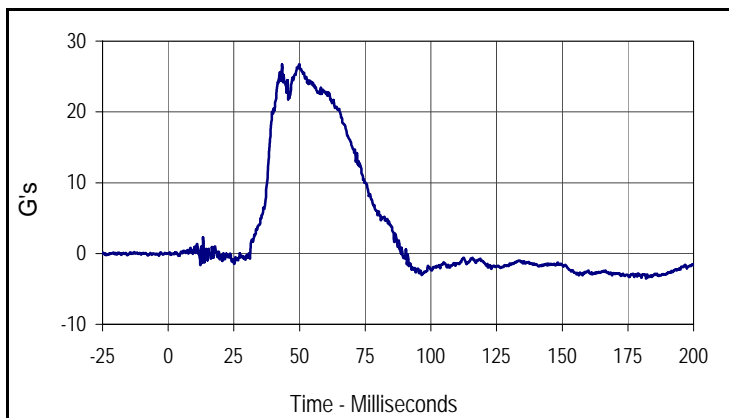
Right MDB Contact Switch

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan  
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

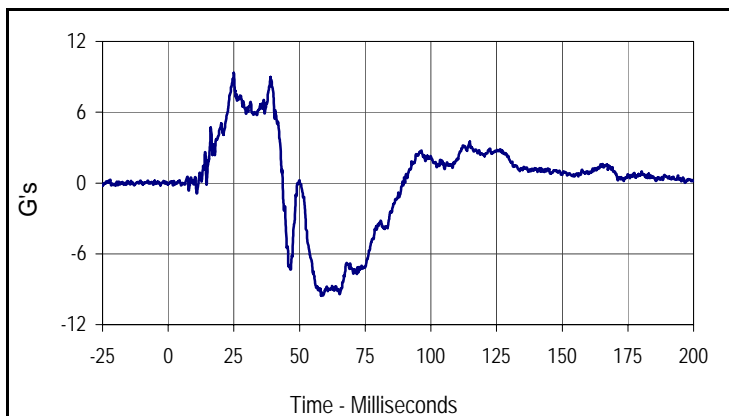
NHTSA No.: O20145801  
 Test Date: 11/25/13



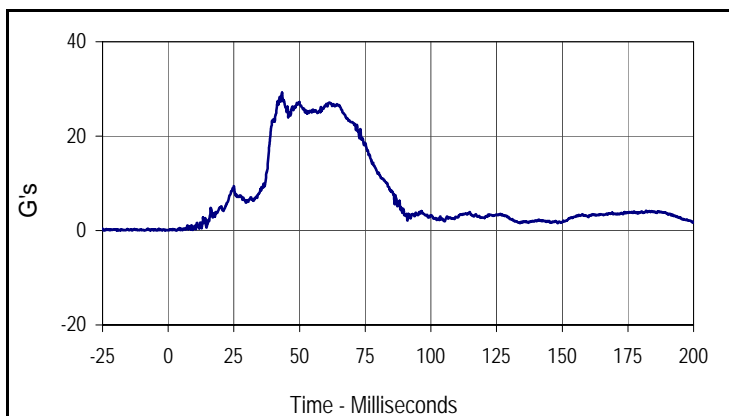
Curve Description			
Driver Head Acceleration X Primary			
Plot No.	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
2.6	181.5	-15.9	73.2



Curve Description			
Driver Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
26.8	49.9	-3.5	182.0



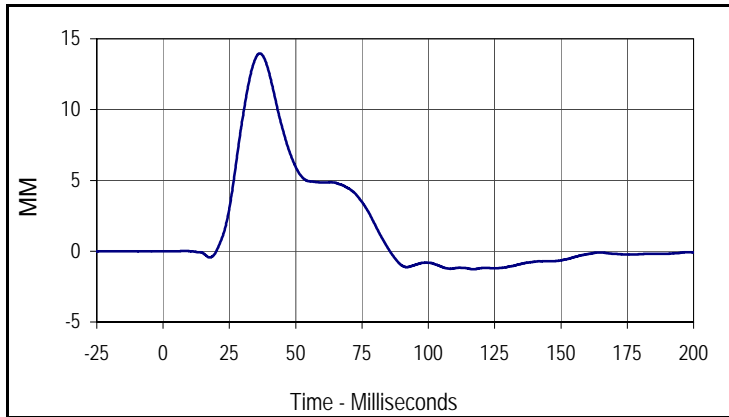
Curve Description			
Driver Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
9.3	25.0	-9.6	58.2



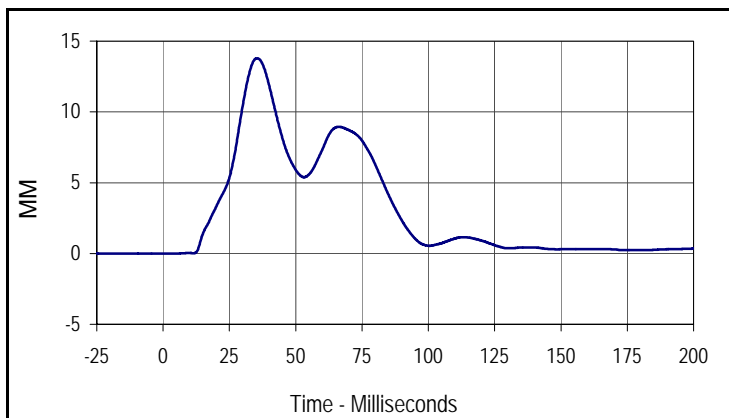
Curve Description			
Driver Head Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
004	RES	1000	G's
Max	Time	Min	Time
29.2	43.3	0.0	2.9

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan  
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

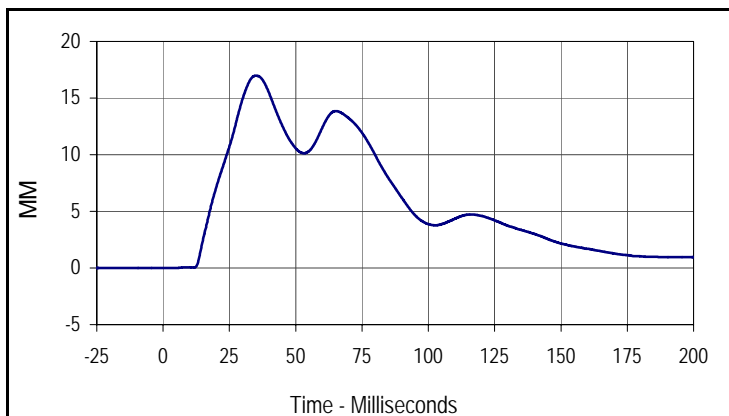
NHTSA No.: O20145801  
 Test Date: 11/25/13



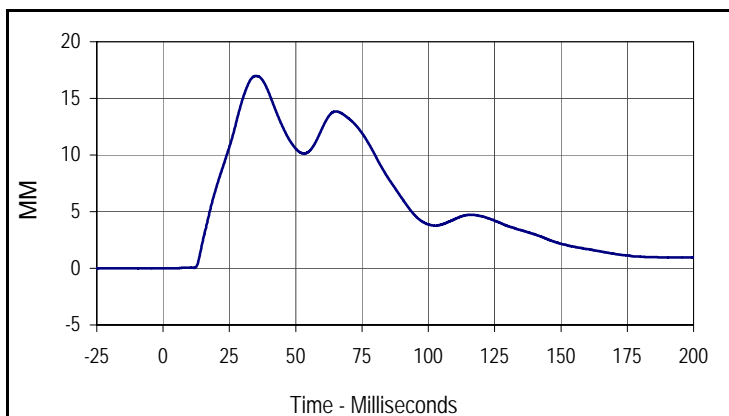
Curve Description			
Driver Upper Thorax Rib Deflection Y			
Plot No.	Type	SAE Class	Units
005	FIL	180	MM
Max	Time	Min	Time
14.0	36.5	-1.3	117.0



Curve Description			
Driver Middle Thorax Rib Deflection Y			
Plot No.	Type	SAE Class	Units
006	FIL	180	MM
Max	Time	Min	Time
13.8	35.4	0.0	3.9



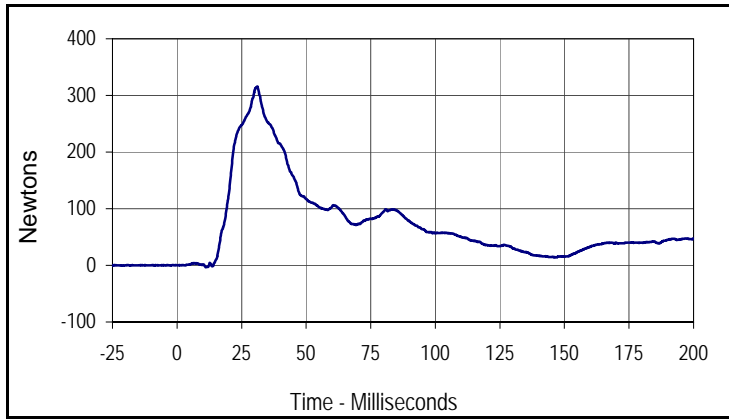
Curve Description			
Driver Lower Thorax Rib Deflection Y			
Plot No.	Type	SAE Class	Units
007	FIL	180	MM
Max	Time	Min	Time
17.0	35.1	0.0	3.7



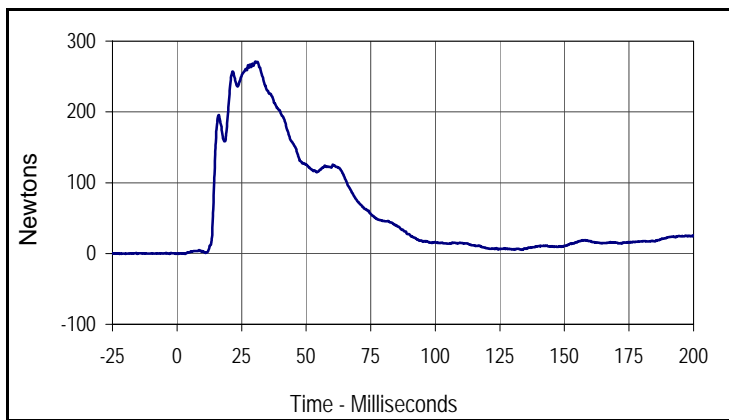
Curve Description			
Driver Thorax Rib Deflection Maximum			
Plot No.	Type	SAE Class	Units
010	FIL	180	MM
Max	Time	Min	Time
17.0	35.1	0.0	3.7

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan  
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

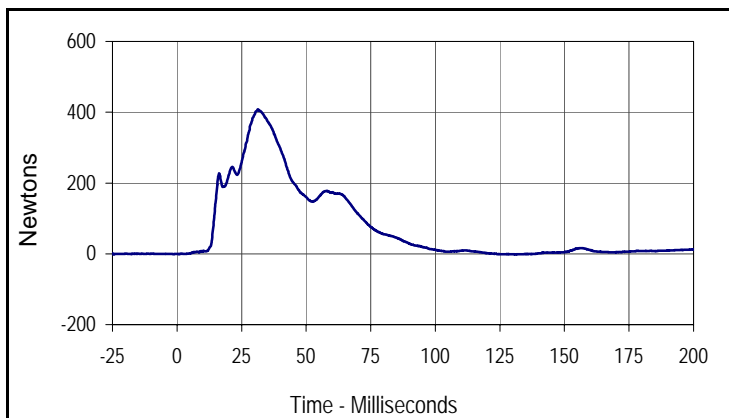
NHTSA No.: O20145801  
 Test Date: 11/25/13



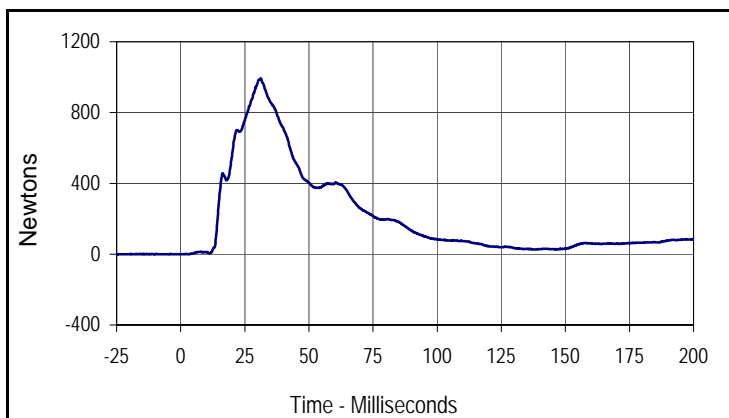
Curve Description			
Driver Anterior Abdominal Force Y			
Plot No.	Type	SAE Class	Units
008	FIL	600	Newtons
Max	Time	Min	Time
315.7	31.1	-3.1	11.2



Curve Description			
Driver Middle Abdominal Force Y			
Plot No.	Type	SAE Class	Units
009	FIL	600	Newtons
Max	Time	Min	Time
271.1	30.4	-0.5	3.2



Curve Description			
Driver Posterior Abdominal Force Y			
Plot No.	Type	SAE Class	Units
011	FIL	600	Newtons
Max	Time	Min	Time
408.4	31.4	-1.9	131.3



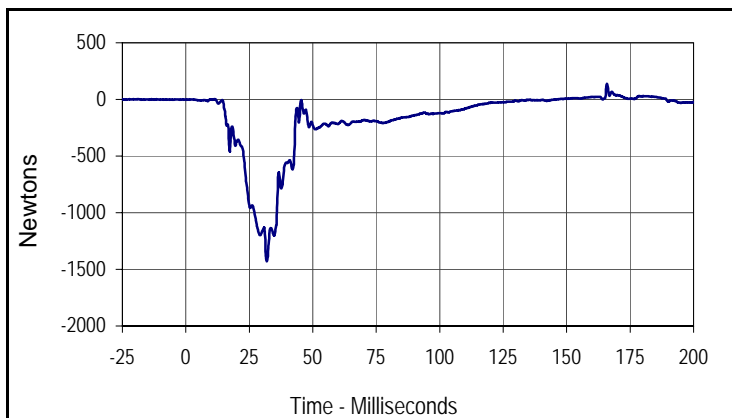
Curve Description			
Driver Total Abdominal Force			
Plot No.	Type	SAE Class	Units
012	SUM	600	Newtons
Max	Time	Min	Time
993.4	31.2	-0.9	0.6

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan

NHTSA No.: O20145801

Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

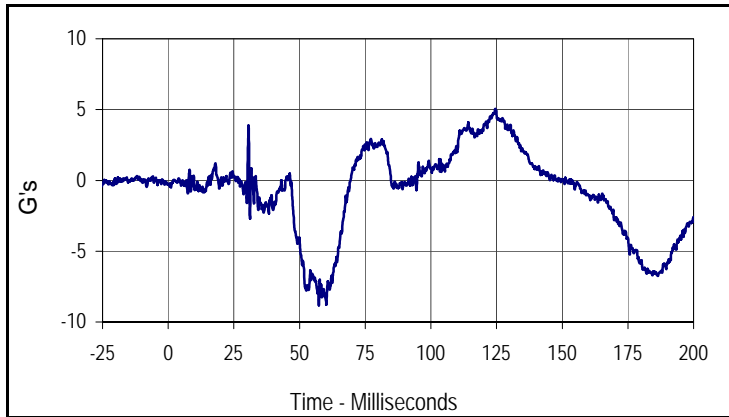
Test Date: 11/25/13



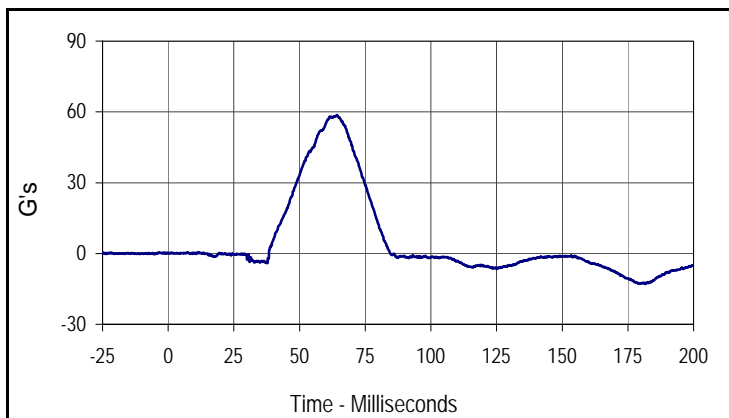
Curve Description			
Driver Pubic Symphysis Force Y			
Plot No.	Type	SAE Class	Units
013	FIL	600	Newtons
Max	Time	Min	Time
138.6	165.9	-1428.7	31.9

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan  
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

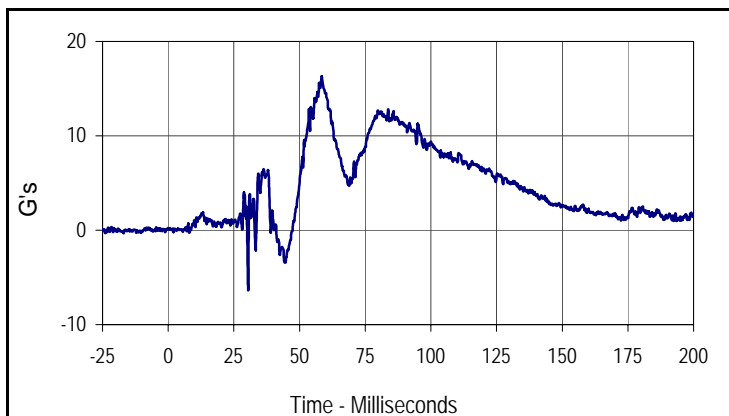
NHTSA No.: O20145801  
 Test Date: 11/25/13



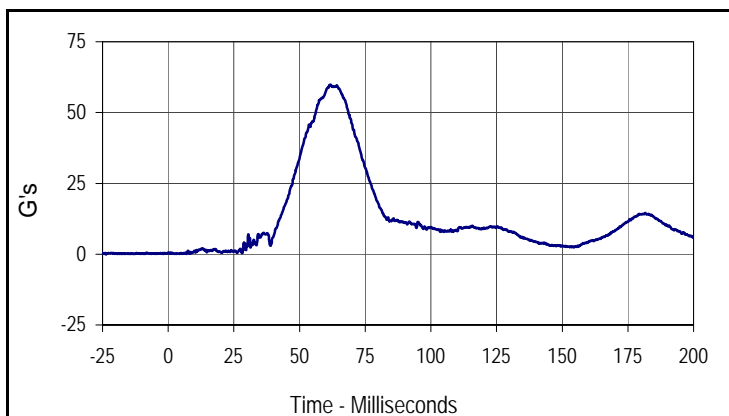
Curve Description			
Passenger Head Acceleration X Primary			
Plot No.	Type	SAE Class	Units
014	FIL	1000	G's
Max	Time	Min	Time
5.1	124.5	-8.8	57.4



Curve Description			
Passenger Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
015	FIL	1000	G's
Max	Time	Min	Time
58.7	64.2	-13.0	181.6



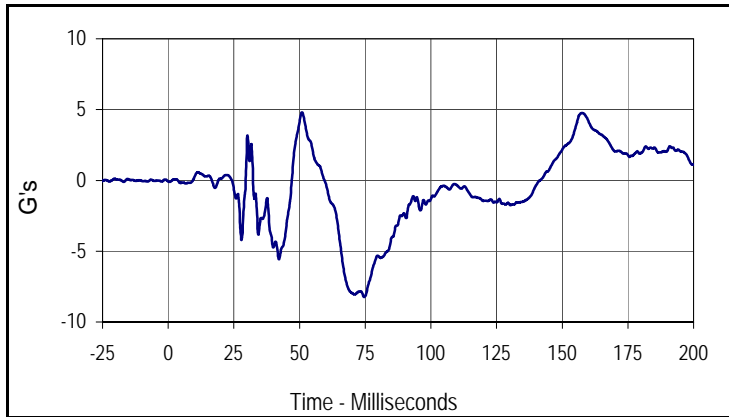
Curve Description			
Passenger Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
016	FIL	1000	G's
Max	Time	Min	Time
16.3	58.5	-6.4	30.4



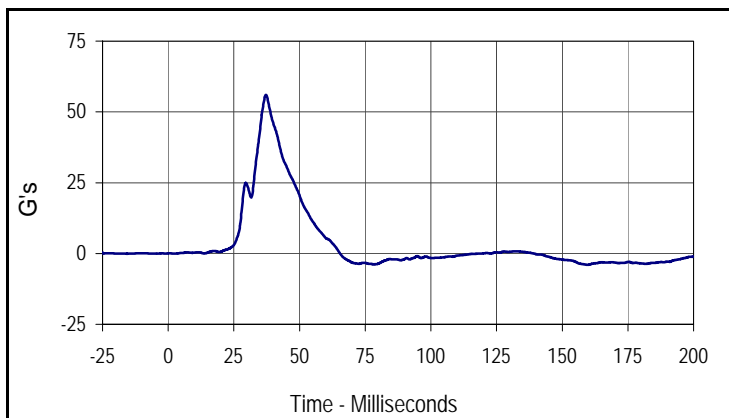
Curve Description			
Passenger Head Acceleration Resultant Primary			
Plot No.	Type	SAE Class	Units
017	RES	1000	G's
Max	Time	Min	Time
59.8	61.8	0.1	2.2

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan  
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

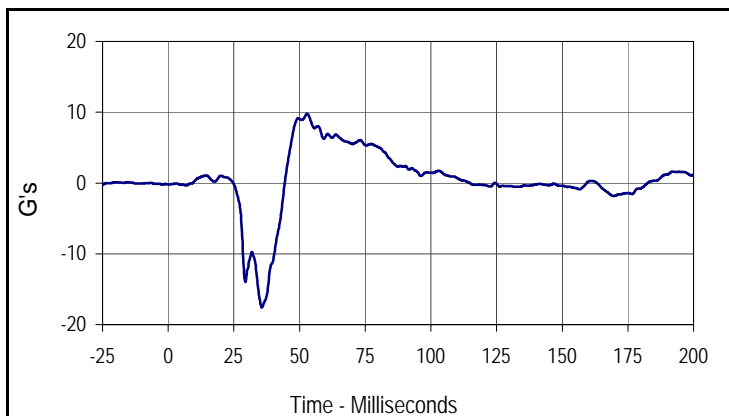
NHTSA No.: O20145801  
 Test Date: 11/25/13



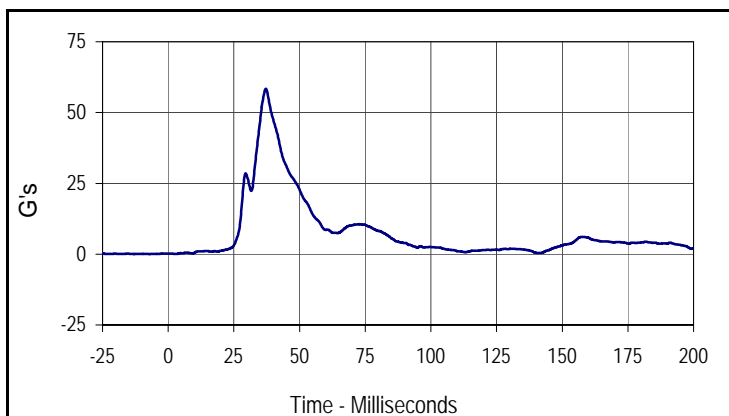
Curve Description			
Passenger Lower Spine T12 Acceleration X			
Plot No.	Type	SAE Class	Units
019	FIL	180	G's
Max	Time	Min	Time
4.8	50.9	-8.2	74.6



Curve Description			
Passenger Lower Spine T12 Acceleration Y			
Plot No.	Type	SAE Class	Units
020	FIL	180	G's
Max	Time	Min	Time
56.1	37.2	-4.0	159.7



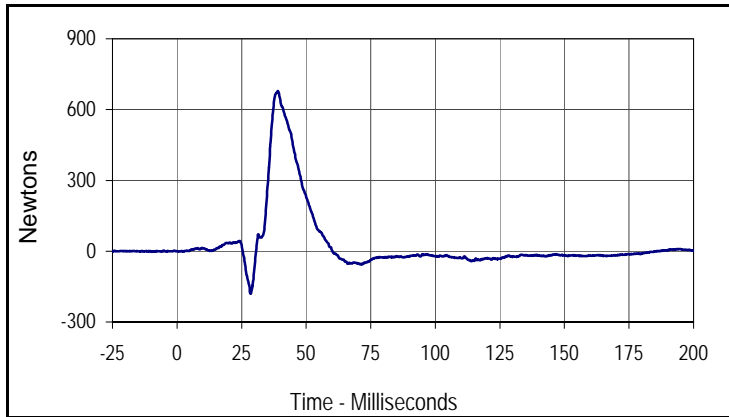
Curve Description			
Passenger Lower Spine T12 Acceleration Z			
Plot No.	Type	SAE Class	Units
021	FIL	180	G's
Max	Time	Min	Time
9.8	52.9	-17.5	35.7



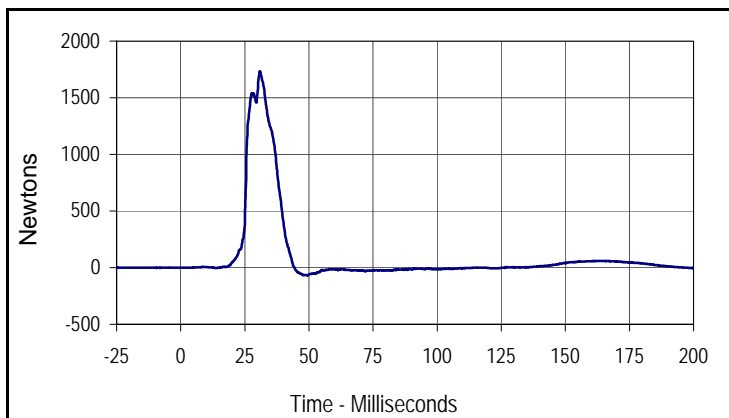
Curve Description			
Passenger Lower Spine T12 Acceleration Resultant			
Plot No.	Type	SAE Class	Units
022	RES	180	G's
Max	Time	Min	Time
58.4	37.2	0.1	3.4

Test Vehicle: 2014 Volkswagen Jetta Hybrid SE 4-Door Sedan  
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

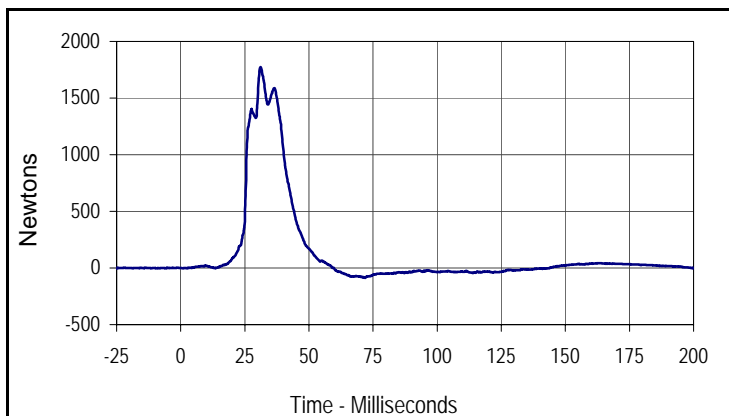
NHTSA No.: O20145801  
 Test Date: 11/25/13



Curve Description			
Passenger Iliac Wing Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
023	FIL	600	Newtons
Max	Time	Min	Time
678.7	39.0	-180.4	28.5



Curve Description			
Passenger Acetabulum Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
024	FIL	600	Newtons
Max	Time	Min	Time
1733.8	30.9	-67.2	49.6



Curve Description			
Passenger Total Pelvic Force			
Plot No.	Type	SAE Class	Units
018	SUM	600	Newtons
Max	Time	Min	Time
1774.0	31.1	-86.5	72.0

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

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

Test Program: ES2re External Measurements

Test Date: 11/22/13



ATD Serial No.: F037

Test I.D.: N/A

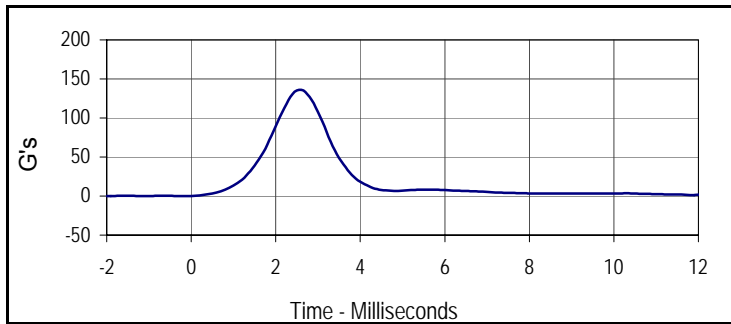
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	30.0	Pass
1 Sitting Height	mm	900 - 918	909	Pass
2 Seat to Shoulder Joint	mm	558 - 572	564	Pass
3 Seat to Lower Face of Thoracic Spine Box	mm	346 - 356	350	Pass
4 Seat to Hip Joint (Center of Bolt)	mm	97 - 103	99	Pass
5 Sole to Seat, Sitting	mm	333 - 451	395	Pass
6 Head Width	mm	152 - 158	156	Pass
7 Shoulder / Arm Width	mm	461 - 479	470	Pass
8 Thorax Width	mm	322 - 332	326	Pass
9 Abdomen Width	mm	273 - 287	280	Pass
10 Pelvis Lap Width	mm	359 - 373	363	Pass
11 Head Depth	mm	196 - 206	201	Pass
12 Thorax Depth	mm	262 - 272	270	Pass
13 Abdomen Width	mm	194 - 204	199	Pass
14 Pelvis Depth	mm	235 - 245	240	Pass
15 Back of Buttocks to Hip Joint (Center of Bolt)	mm	150 - 160	155	Pass
16 Back of Buttocks to Front Knee	mm	597 - 615	608	Pass
Overall Test Results				Pass

Test Program: ES2re Head Drop Test  
 ATD Serial No.: F037

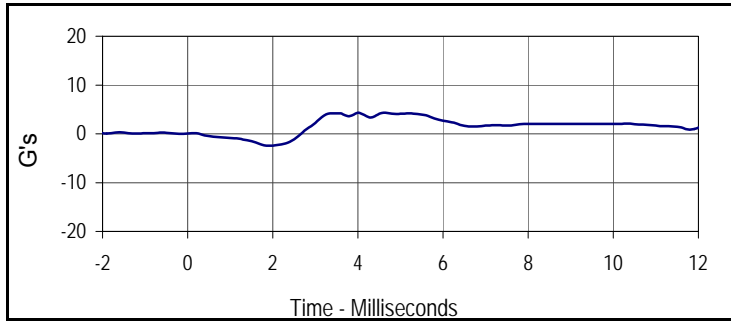
Test Date: 11/22/13  
 Test I.D.: F037HD026



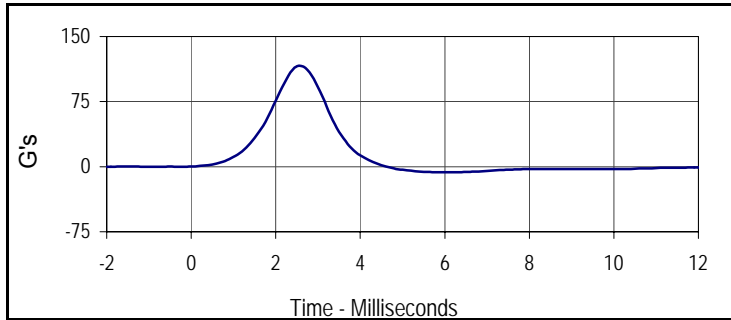
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	375	Pass
Temperature During Soak	Max	20.6 to 22.2	22.0	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	36.2	Pass
	Min		30.3	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	22.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	36.2	Pass
Peak Head Resultant Acceleration	G's	125 to 155	135.9	Pass
Peak Head X Acceleration	G's	≤15	4.3	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	6.1	Pass
Overall Test Results				Pass



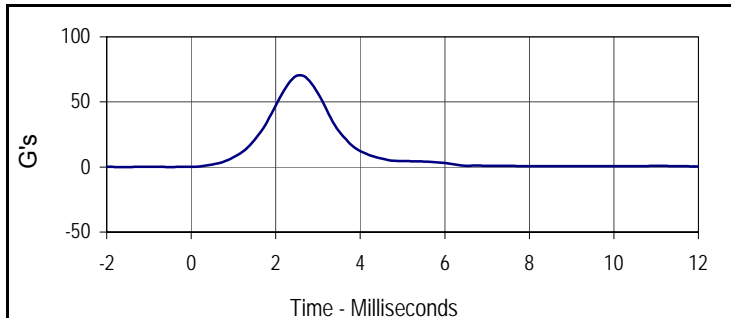
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
135.9	2.6	0.1	-1.1



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
4.3	4.6	-2.4	1.9



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
116.1	2.6	-6.5	5.9



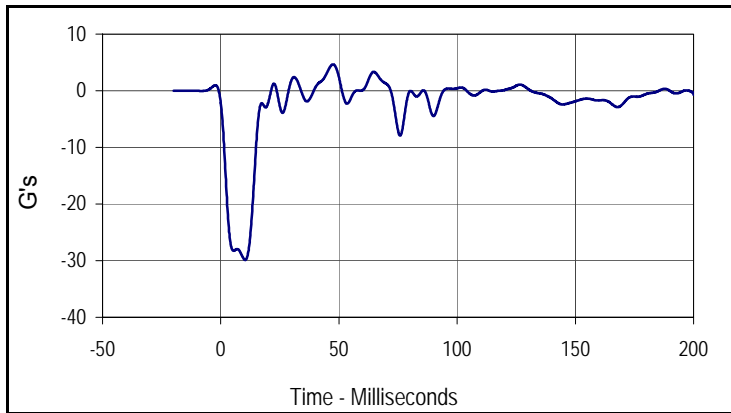
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
70.6	2.6	-0.2	-1.7

Test Program: ES2re Neck Flexion Test  
 ATD Serial No.: F037

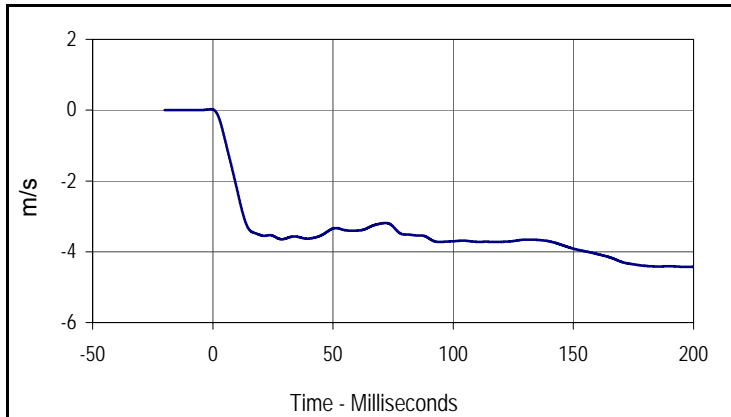
Test Date: 11/22/13  
 Test I.D.: F037NB026



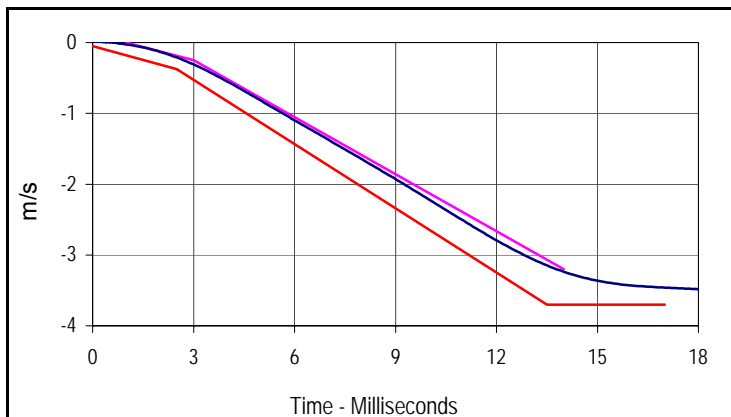
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	410	Pass	
Temperature During Soak	Max	20.6 to 22.2	22.0	Pass	
	Min		21.2	Pass	
Humidity During Soak	Max	10.0 to 70.0	36.2	Pass	
	Min		30.3	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	22.0	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	36.1	Pass	
Pendulum Velocity	m/s	3.3 to 3.5	3.43	Pass	
Headform Flexion	Max	Degrees	49 to 59	53.7	Pass
	Time	msec	54 to 66	59.6	Pass
Headform Flexion Decay (Peak to Zero)	msec	53 to 88	61.6	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
4.7	47.5	-29.9	10.3



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.8	-4.4	199.9



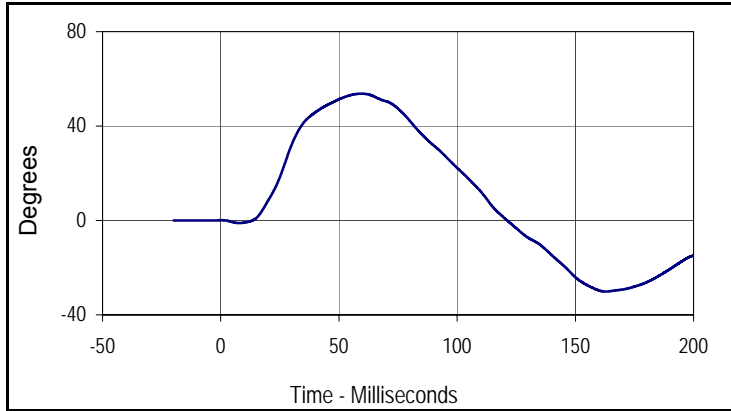
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.8	-4.4	199.9

Velocity Corridors

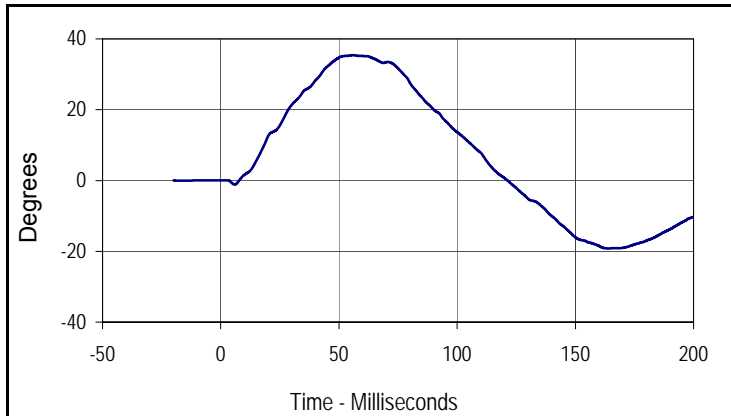
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.0	-0.03	2.5	-0.375
14.0	-3.20	13.5	-3.70
		17.0	-3.70

Test Program: ES2re Neck Flexion Test  
 ATD Serial No.: F037

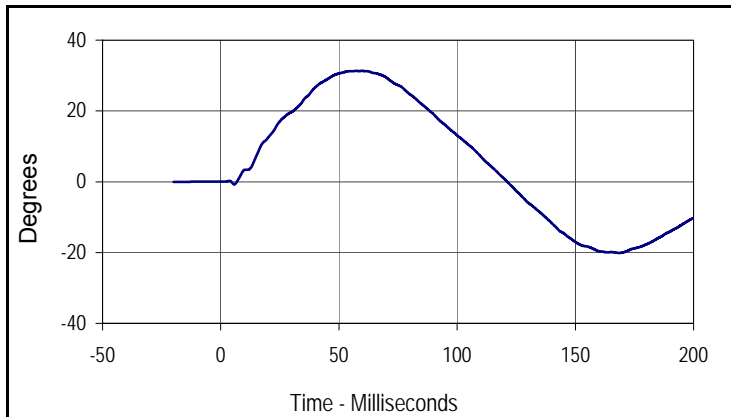
Test Date: 11/22/13  
 Test I.D.: F037NB026



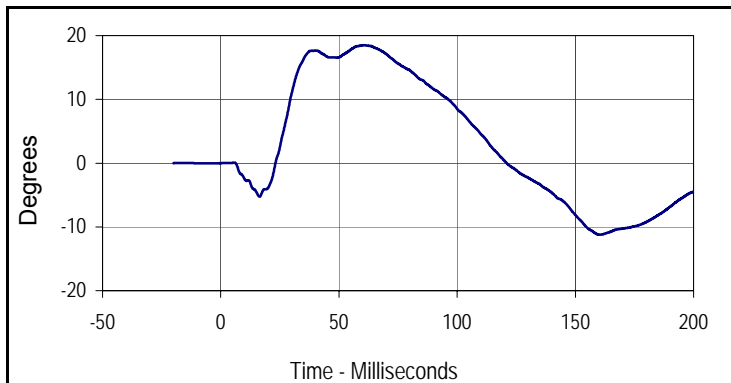
Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	180	Degrees
Max	Time	Min	Time
53.7	59.6	-30.1	162.7



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
004	FIL	180	Degrees
Max	Time	Min	Time
35.4	56.1	-19.2	164.1



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
005	FIL	180	Degrees
Max	Time	Min	Time
31.3	59.7	-20.1	168.6



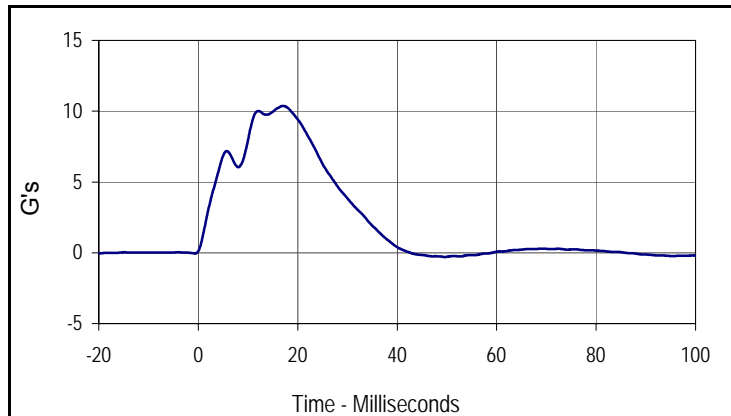
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
006	FIL	180	Degrees
Max	Time	Min	Time
18.5	60.5	-11.2	160.1

Test Program: ES2re Shoulder Impact Test  
 ATD Serial No.: F037

Test Date: 11/22/13  
 Test I.D.: F037SH026



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	475	Pass
Temperature During Soak	Max	20.6 to 22.2	22.0	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	36.2	Pass
	Min		30.3	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.9	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	36.0	Pass
Pendulum Speed	m/s	4.2 to 4.4	4.24	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	10.4	Pass
Overall Test Results				Pass



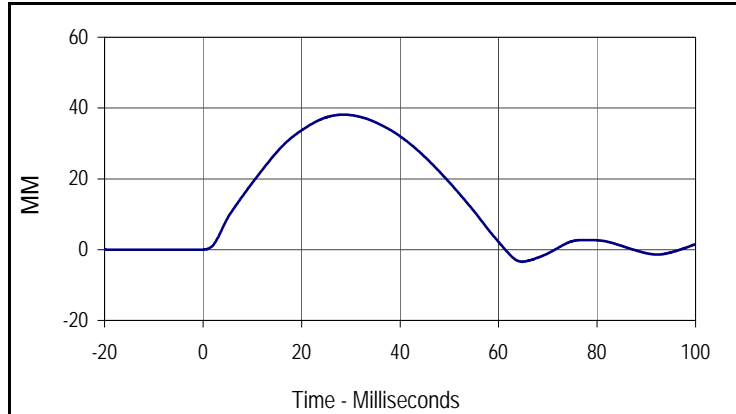
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
10.4	17.0	-0.3	49.5

Test Program: ES2re Thorax - Rib Drop Test  
 ATD Serial No.: F037 Rib # 1

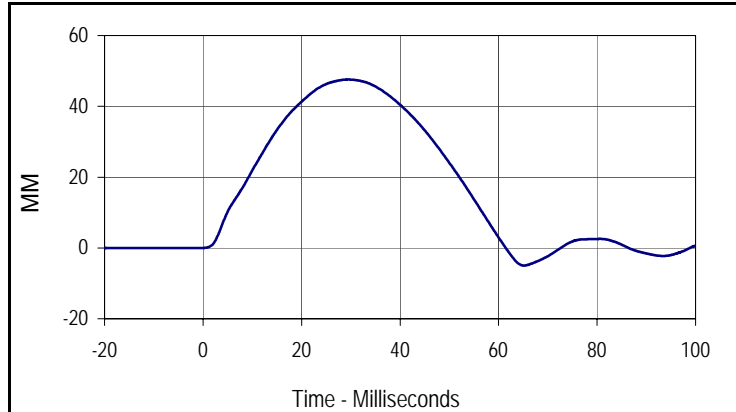
Test Date: 11/22/13  
 Test I.D.: F037RB1026



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	530	Pass
Temperature During Soak	Max	20.6 to 22.2	22.0	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	36.2	Pass
	Min		30.3	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.9	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.9	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	38.1	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	47.6	Pass
Overall Test Results				Pass



Curve Description			
Upper Rib Deflection (459 mm Drop Height)			
Plot No.	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
38.1	28.5	-3.4	64.8



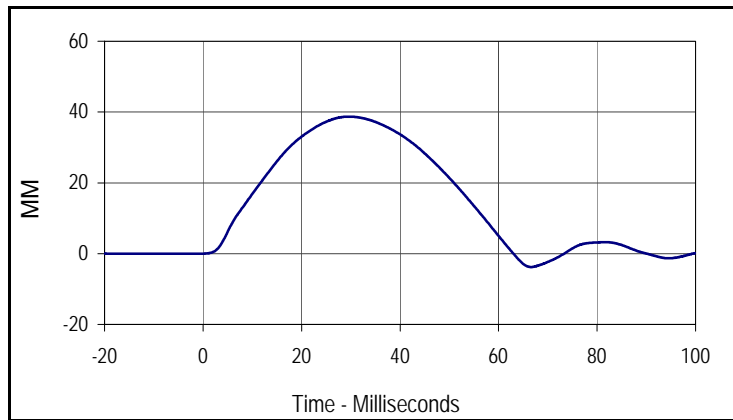
Curve Description			
Upper Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
47.6	29.5	-5.0	65.2

Test Program: ES2re Thorax - Rib Drop Test  
 ATD Serial No.: F037 Rib # 2

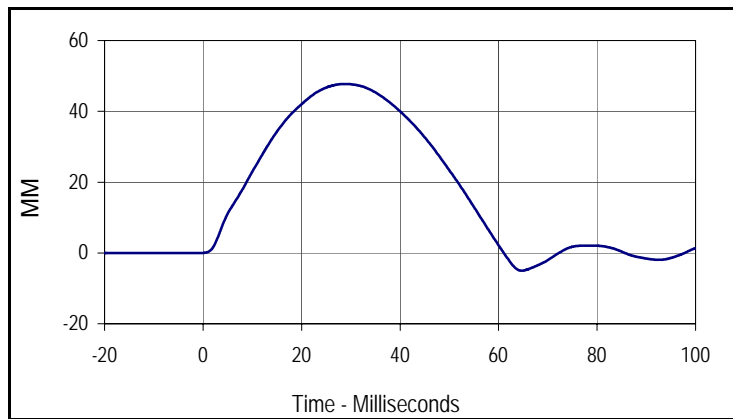
Test Date: 11/22/13  
 Test I.D.: F037RB2026



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	575	Pass
Temperature During Soak	Max	20.6 to 22.2	22.0	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	36.2	Pass
	Min		30.3	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.8	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.8	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	38.7	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	47.7	Pass
Overall Test Results				Pass



Curve Description			
Middle Rib Deflection (459 mm Drop Height)			
Plot No.	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
38.7	29.7	-3.8	66.6



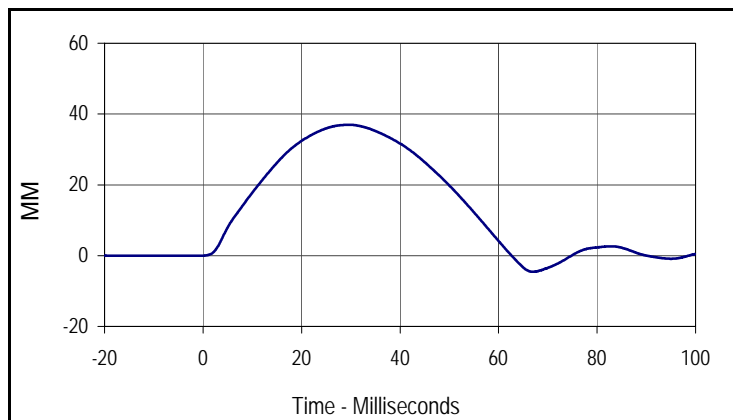
Curve Description			
Middle Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
47.7	28.8	-5.0	64.7

Test Program: ES2re Thorax - Rib Drop Test  
 ATD Serial No.: F037 Rib # 3

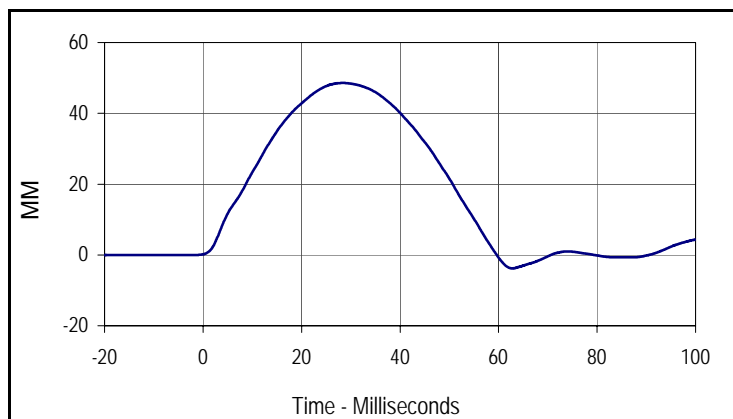
Test Date: 11/22/13  
 Test I.D.: F037RB3026



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	620	Pass
Temperature During Soak	Max	20.6 to 22.2	22.0	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	36.2	Pass
	Min		30.3	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.8	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.7	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	37.0	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	48.6	Pass
Overall Test Results				Pass



Curve Description			
Lower Rib Deflection (459 mm Drop Height)			
Plot No.	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
37.0	29.7	-4.6	67.0



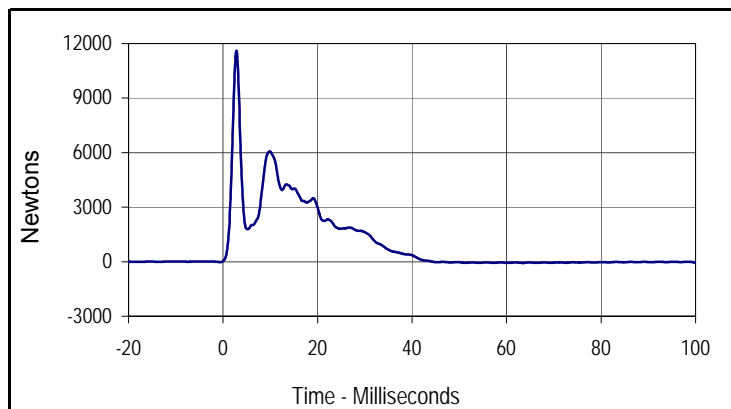
Curve Description			
Lower Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
48.6	28.4	-3.8	62.8

Test Program: ES2re Thorax - Full Body Impact Test  
 ATD Serial No.: F037

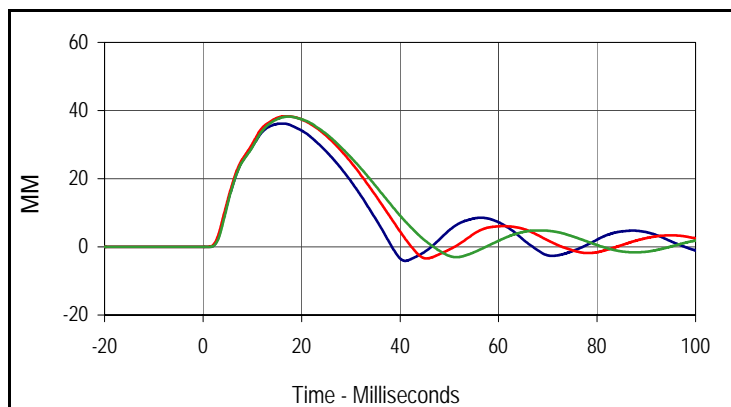
Test Date: 11/22/13  
 Test I.D.: F037TH026



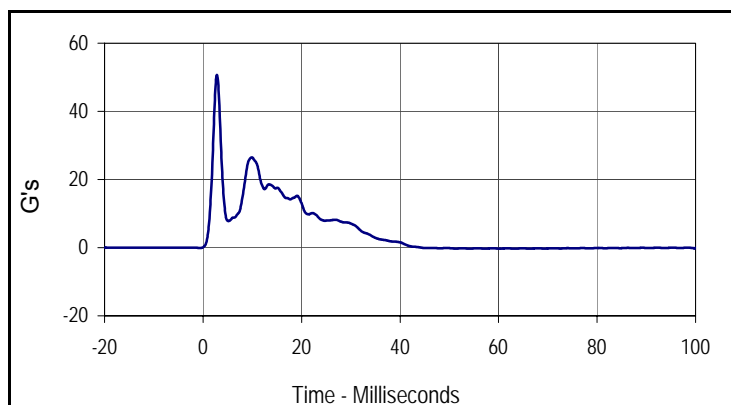
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	665	Pass
Temperature During Soak	Max	20.6 to 22.2	22.0	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	36.2	Pass
	Min		30.3	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.8	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.6	Pass
Peak Impactor Velocity	m/s	5.4 to 5.6	5.42	Pass
Peak Impactor Force	N	5100 to 6200	6071.9	Pass
	msec	> 6.0 msec	9.9	Pass
Peak Upper Rib Deflection	mm	34 to 41	36.2	Pass
Peak Middle Rib Deflection	mm	37 to 45	38.3	Pass
Peak Lower Rib Deflection	mm	37 to 44	38.2	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
11618.5	2.8	-70.1	63.5



Curve Description			
Upper, Middle, Lower Rib Deflections			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max (Upper)	Time	Min (Upper)	Time
36.2	16.1	-4.1	41.0
Max (Middle)	Time	Min (Middle)	Time
38.3	16.9	-3.4	45.4
Max (Lower)	Time	Min (Lower)	Time
38.2	17.3	-3.0	51.4



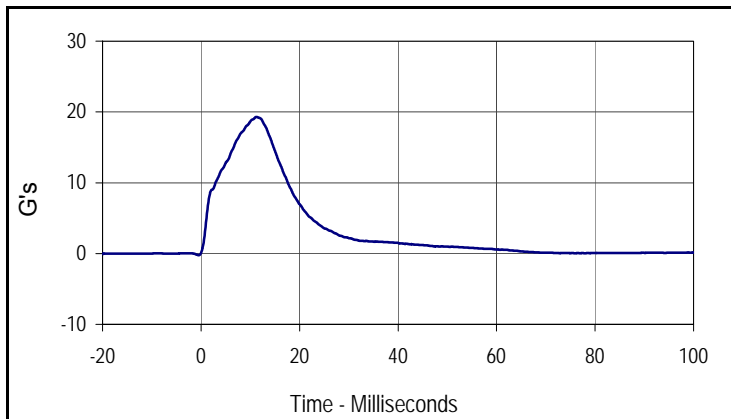
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
50.7	2.8	-0.3	63.5

Test Program: ES2re Abdomen Impact Test  
 ATD Serial No.: F037

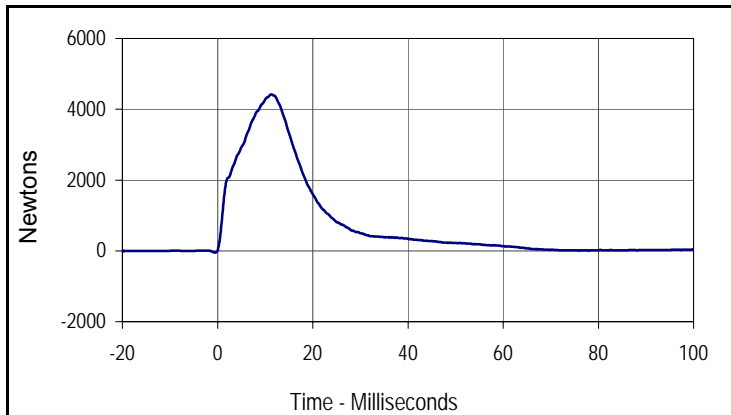
Test Date: 11/22/13  
 Test I.D.: F037ABD026



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	735	Pass
Temperature During Soak	Max	20.6 to 22.2	22.0	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	36.2	Pass
	Min		30.3	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.7	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.5	Pass
Probe Velocity	m/s	3.9 to 4.1	4.02	Pass
Peak Impactor Force	N	4000 to 4800	4420.8	Pass
	msec	10.6 to 13.0	11.2	Pass
Sum of Abdominal Forces	N	2200 to 2700	2347.9	Pass
	msec	10.0 to 12.3	10.3	Pass
Overall Test Results				Pass



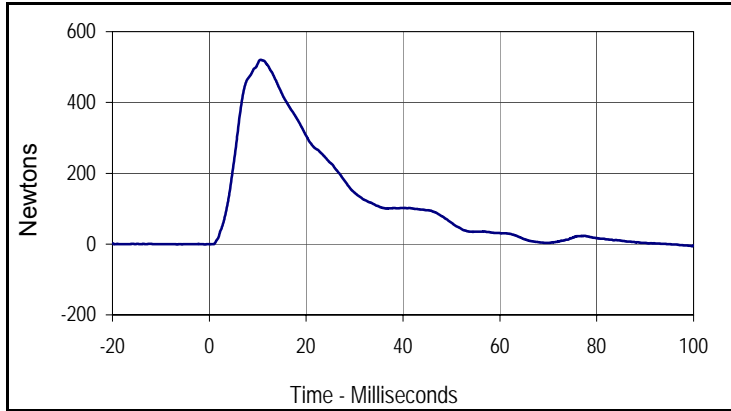
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
19.3	11.2	-0.2	-0.5



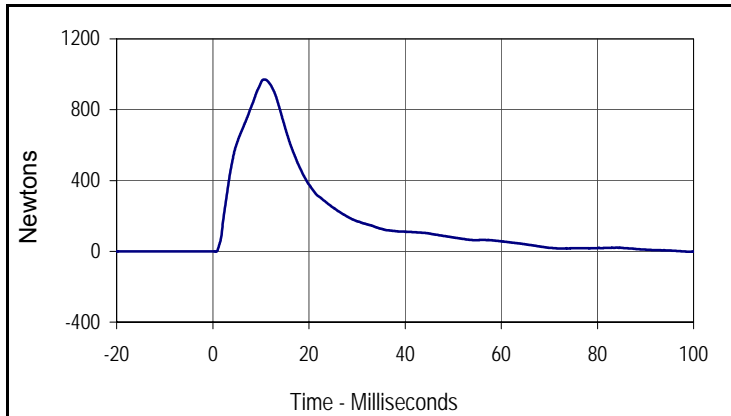
Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
4420.8	11.2	-51.8	-0.5

Test Program: ES2re Abdomen Impact Test  
 ATD Serial No.: F037

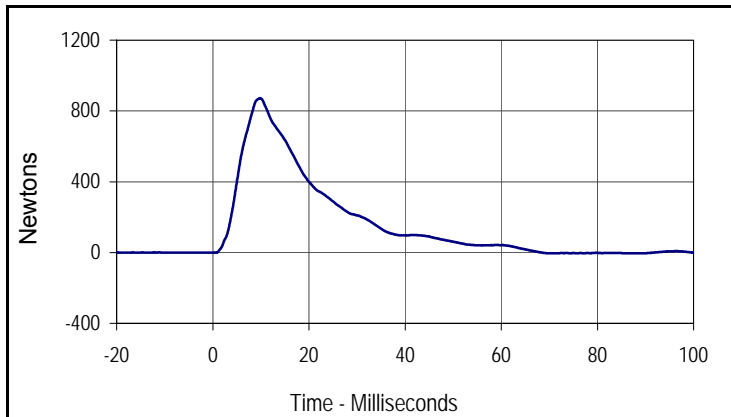
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 Test I.D.: F037ABD026



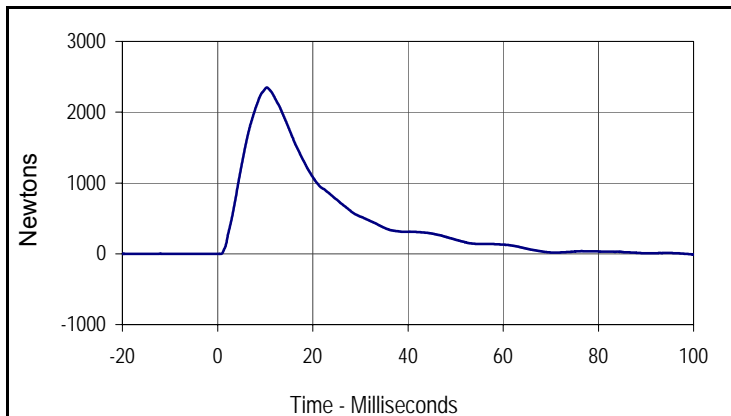
Curve Description			
Front Abdomen Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
520.5	10.6	-9.9	106.2



Curve Description			
Middle Abdomen Force			
Plot No.	Type	SAE Class	Units
004	FIL	600	Newtons
Max	Time	Min	Time
970.4	10.7	-6.8	106.3



Curve Description			
Rear Abdomen Force			
Plot No.	Type	SAE Class	Units
005	FIL	600	Newtons
Max	Time	Min	Time
871.9	9.8	-7.7	108.4



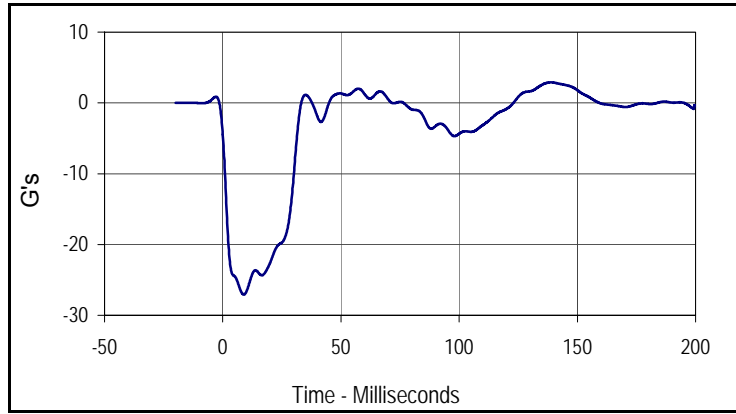
Curve Description			
Abdomen Sum Resultant			
Plot No.	Type	SAE Class	Units
006	RES	600	Newtons
Max	Time	Min	Time
2347.9	10.3	-15.3	101.3

Test Program: ES2re Lumbar Flexion Test  
 ATD Serial No.: F037

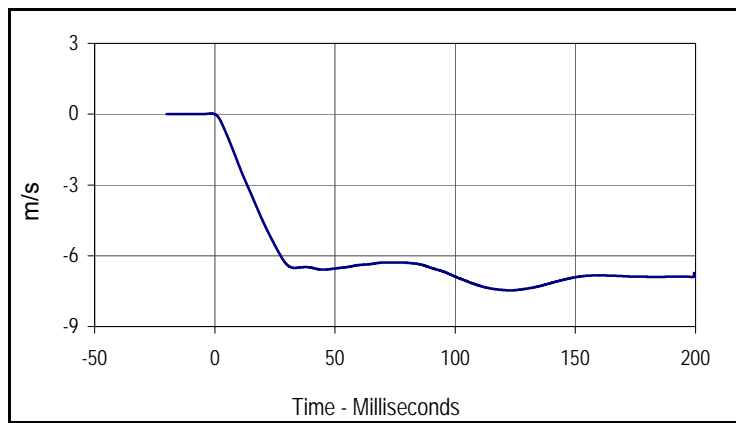
Test Date: 11/22/13  
 Test I.D.: F037LB026



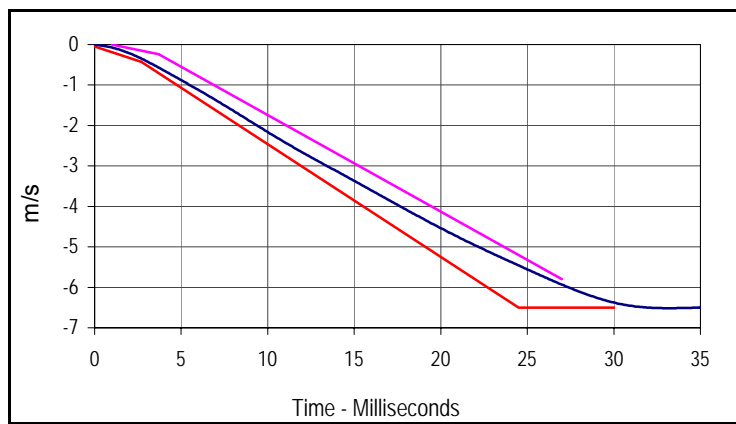
Tested Parameter	Units	Specification	Result	Pass/Fail	
Lumbar Spine Assembly Soak Time	Minutes	≥240	810	Pass	
Temperature During Soak	Max	20.6 to 22.2	22.0	Pass	
	Min		21.2	Pass	
Humidity During Soak	Max	10.0 to 70.0	36.2	Pass	
	Min		30.3	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.7	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	35.5	Pass	
Pendulum Velocity	m/s	5.95 to 6.15	6.00	Pass	
Headform Rotation	Max	Degrees	45 to 55	47.1	Pass
	Time	msec	39 to 53	42.3	Pass
Time of Decay to Zero Angle from Peak	msec	37 to 57	44.0	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
2.9	139.5	-27.1	9.5



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.9	-7.5	123.5

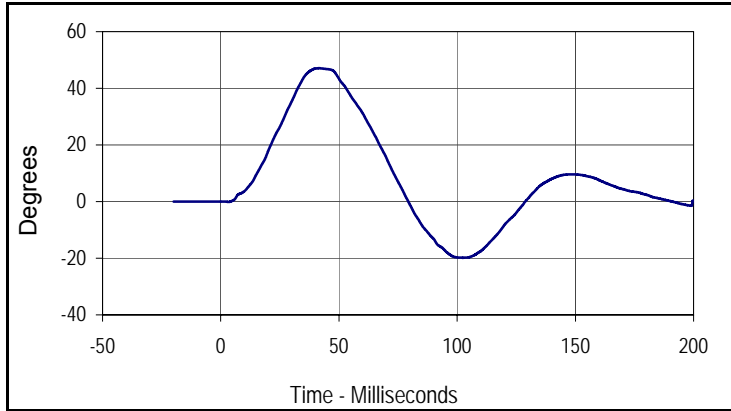


Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.9	-7.5	123.5

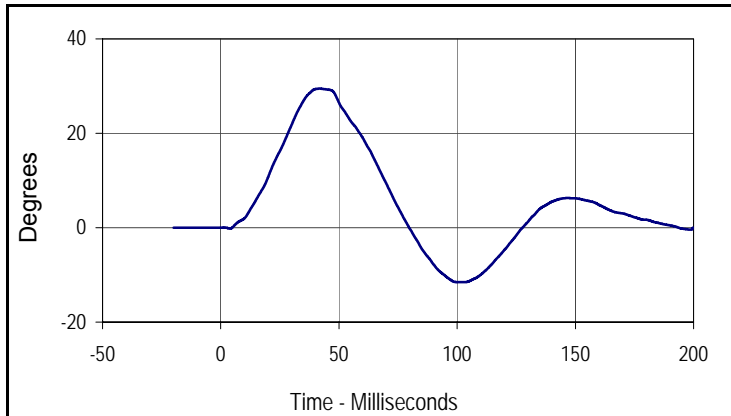
Velocity Corridors			
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.7	-0.24	2.7	-0.425
27.0	-5.80	24.5	-6.50
		30.0	-6.50

Test Program: ES2re Lumbar Flexion Test  
 ATD Serial No.: F037

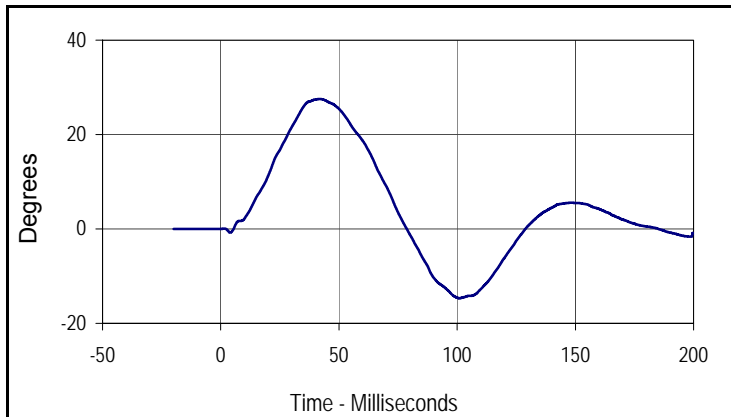
Test Date: 11/22/13  
 Test I.D.: F037LB026



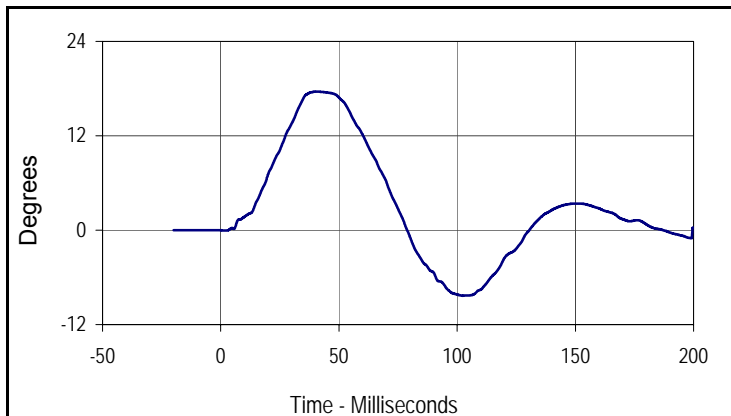
Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	180	Degrees
Max	Time	Min	Time
47.1	42.3	-19.8	103.0



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
004	FIL	180	Degrees
Max	Time	Min	Time
29.5	42.4	-11.5	101.0



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
005	FIL	180	Degrees
Max	Time	Min	Time
27.5	42.4	-14.7	101.5



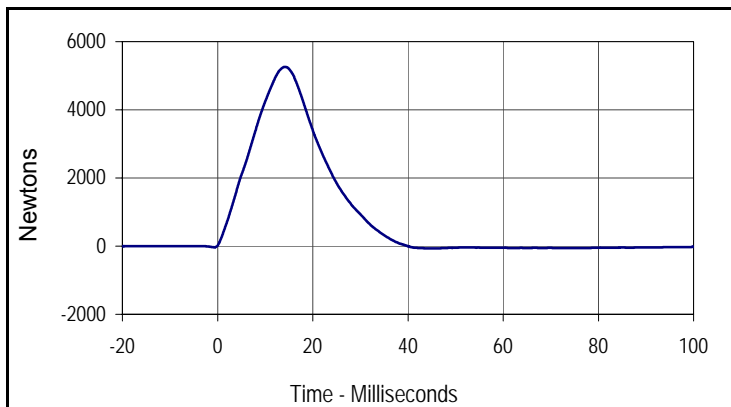
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
006	FIL	180	Degrees
Max	Time	Min	Time
17.6	41.0	-8.3	103.0

Test Program: ES2re Pelvis Impact Test  
 ATD Serial No.: F037

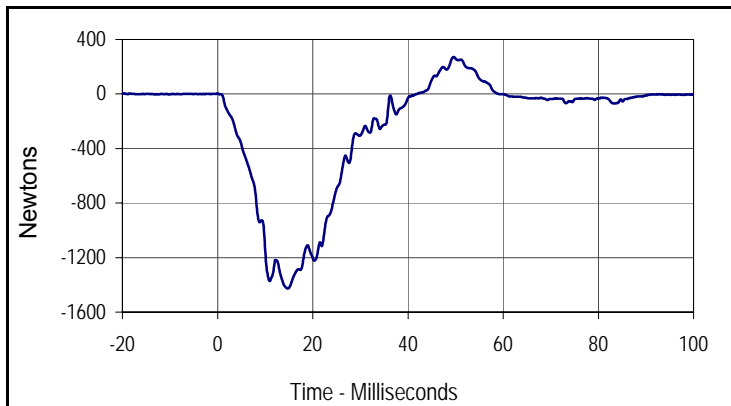
Test Date: 11/22/13  
 Test I.D.: F037PL026



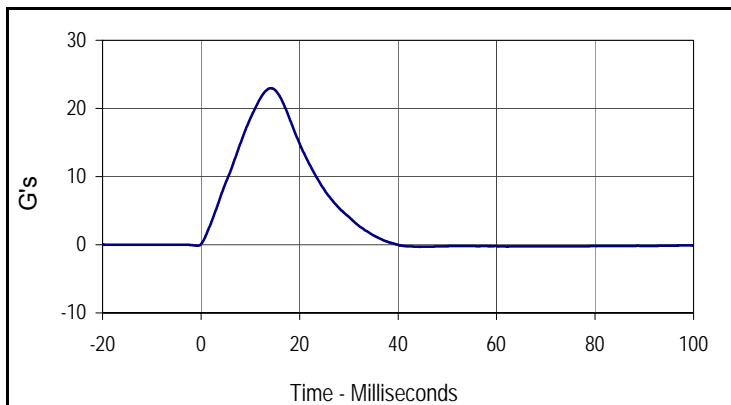
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	865	Pass
Temperature During Soak	Max	20.6 to 22.2	22.0	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	36.2	Pass
	Min		30.3	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.7	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.4	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.32	Pass
Peak Impactor Force	N	4700 to 5400	5261.2	Pass
	msec	11.8 to 16.1	14.1	Pass
Peak Pubic Symphysis Load	N	-1230 to -1590	-1427.1	Pass
	msec	12.2 to 17.0	14.7	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
5261.2	14.1	-70.0	44.4



Curve Description			
Pubic Symphysis Force Y			
Plot No.	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
271.7	49.6	-1427.1	14.7



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
23.0	14.1	-0.3	44.4

Test Program: SID IIs External Measurements

Test Date: 11/19/13



ATD Serial No.: 307

Test I.D.: N/A

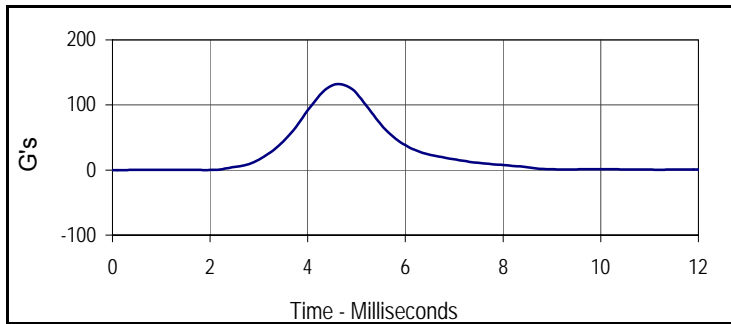
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	35	Pass
A Sitting Height	mm	772 - 788	778	Pass
B Shoulder Pivot Height	mm	437 - 453	443	Pass
C H-Point Height	mm	79 - 89	85	Pass
D H-Point from Seatback	mm	141 - 151	144	Pass
E Shoulder Pivot from Backline	mm	97 - 107	102	Pass
F Thigh Clearance	mm	119 - 135	128	Pass
G Head Breadth	mm	140 - 148	145	Pass
H Head Back from Backline	mm	40 - 46	43	Pass
I Head Depth	mm	178 - 188	185	Pass
J Head Circumference	mm	541 - 551	546	Pass
K Buttock to Knee Length	mm	514 - 540	525	Pass
L Popliteal Height	mm	343 - 369	351	Pass
M Knee Pivot to Floor Height	mm	392 - 409	400	Pass
N Buttock Popliteal Length	mm	416 - 442	432	Pass
O Chest Depth w/o Jacket	mm	195 - 211	205	Pass
P Foot Length	mm	216 - 232	223	Pass
Q Hip Breadth with Pelvic Plug	mm	313 - 323	319	Pass
R Arm Length	mm	249 - 259	254	Pass
S Knee Joint to Seatback	mm	477 - 493	483	Pass
V Shoulder Width	mm	341 - 357	351	Pass
W Foot Width	mm	78 - 94	89	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.: 307

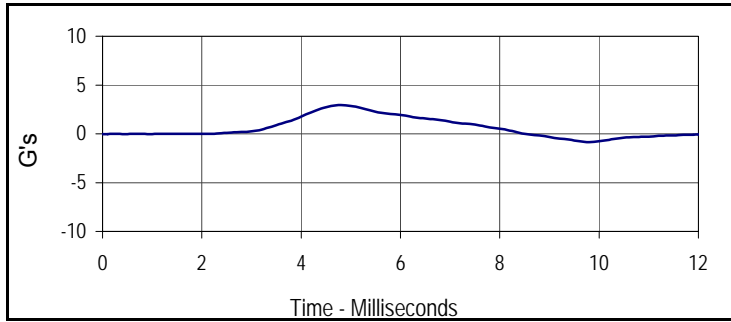
Test Date: 11/19/13  
 Test I.D.: 307HD059



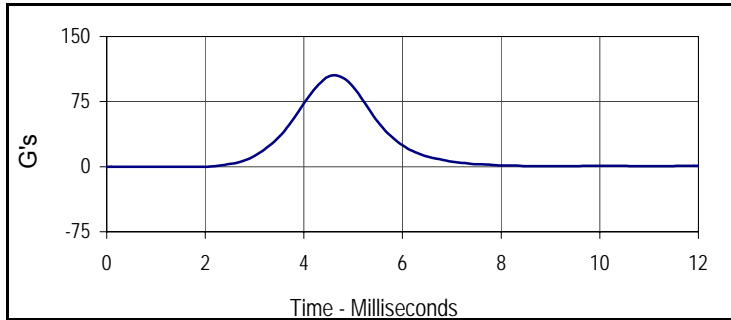
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	325	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass
	Min		34.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.7	Pass
Peak Head Resultant Acceleration	G's	115 to 137	132.3	Pass
Peak Head X Acceleration	G's	<15	3.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	1.0	Pass
Overall Test Results				Pass



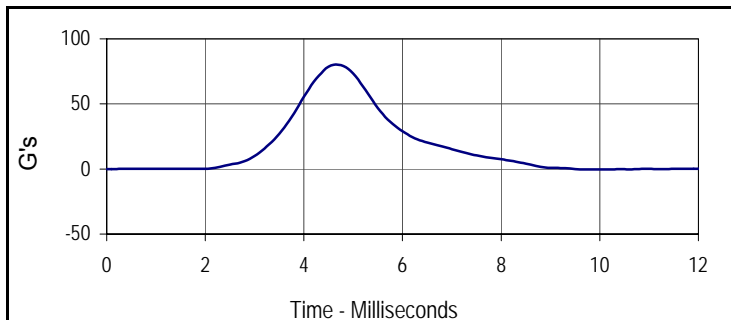
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
132.3	4.6	0.0	0.2



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
3.0	4.8	0.0	0.0



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
105.3	4.6	0.0	2.0



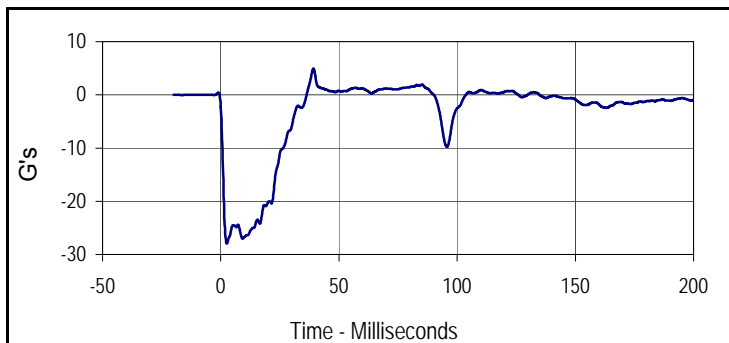
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
80.1	4.7	-0.4	10.1

Test Program: SID IIs Neck Flexion Test  
 ATD Serial No.: 307

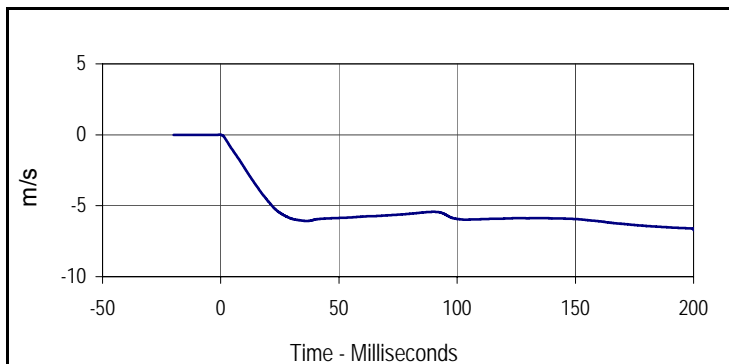
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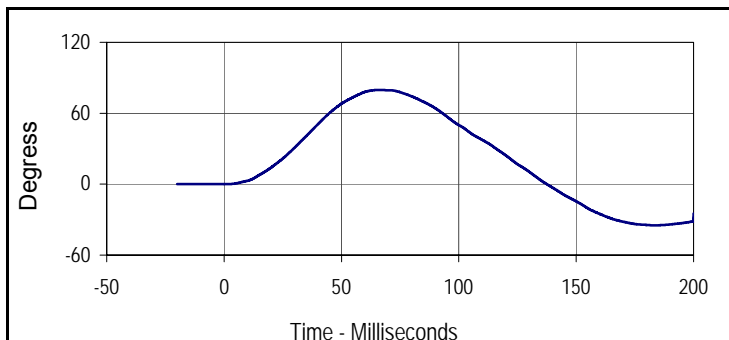
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	400	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass	
	Min		21.0	Pass	
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass	
	Min		34.6	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	34.6	Pass	
Pendulum Velocity	m/s	5.51 to 5.63	5.54	Pass	
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.32	Pass
	15 msec	m/s	-3.30 to -4.10	-3.58	Pass
	20 msec	m/s	-4.40 to -5.40	-4.67	Pass
	25 msec	m/s	-5.40 to -6.10	-5.50	Pass
	25-100 msec	m/s	-5.50 to -6.20	-6.07	Pass
D-Plane Rotation	Max	Degrees	71 to 81	79.7	Pass
	Time	msec	50 to 70	65.7	Pass
Peak Occipital Condyle Moment	Nm	-36 to -44	-39.4	Pass	
Decaying Moment Time to Cross 0 Nm	msec	102 to 126	115.1	Pass	
<b>Overall Test Results</b>				<b>Pass</b>	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
5.0	0.0	-27.9	0.0



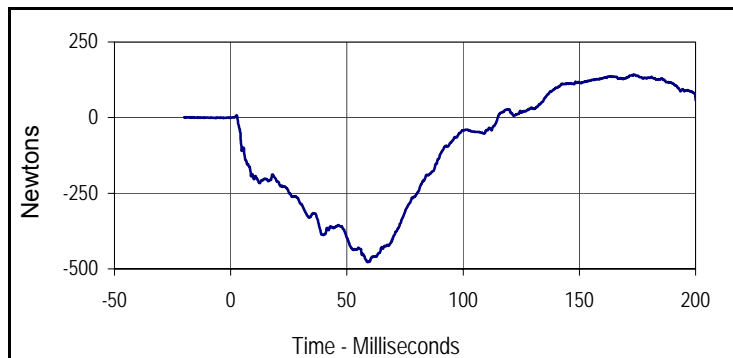
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.5	-6.7	200.0



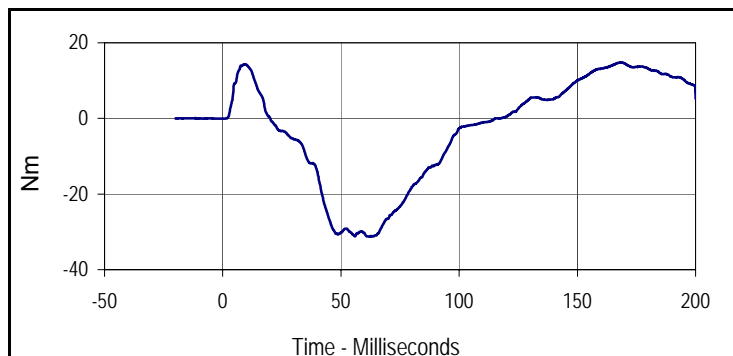
Curve Description			
D-Plane Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	Degress
Max	Time	Min	Time
79.7	65.7	-34.8	183.4

Test Program: SID IIs Neck Flexion Test  
 ATD Serial No.: 307

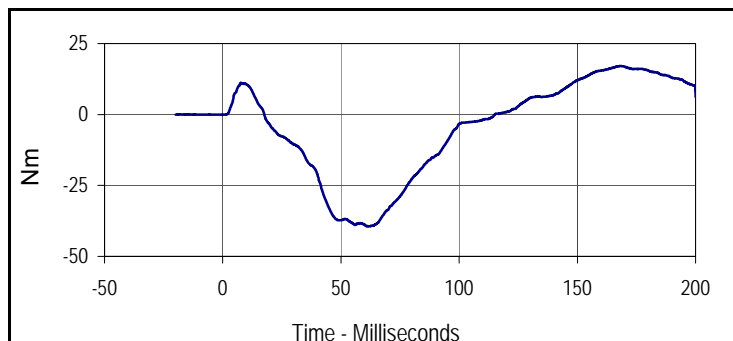
Test Date: 11/19/13  
 Test I.D.: 307NB059



Curve Description			
Neck Force Y			
Plot No.	Type	SAE Class	Units
004	FIL	600	Newtons
Max	Time	Min	Time
142.4	173.8	-477.7	59.0



Curve Description			
Neck Moment X			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
14.8	168.5	-31.3	62.2



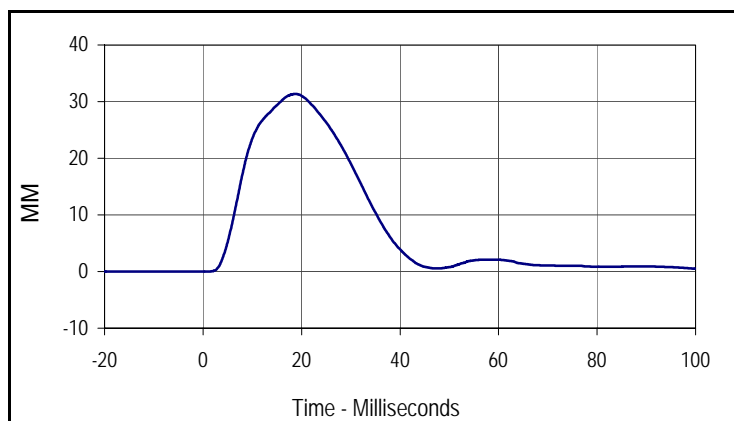
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
006	FIL	600	Nm
Max	Time	Min	Time
17.1	168.5	-39.4	62.0

Test Program: SID IIs Shoulder Impact Test  
 ATD Serial No.: 307

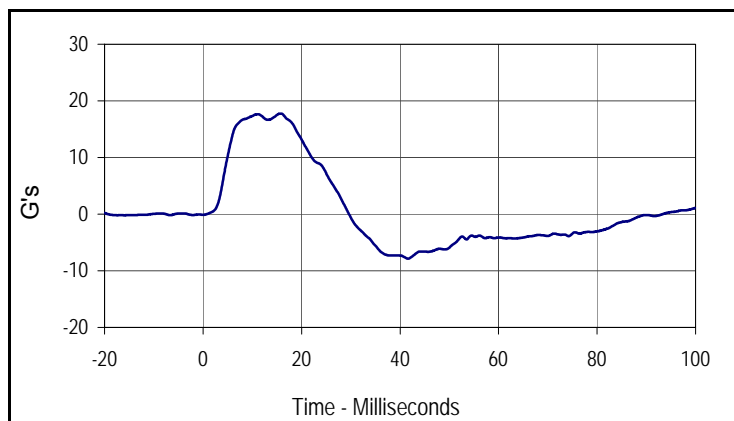
Test Date: 11/19/13  
 Test I.D.: 307SH059



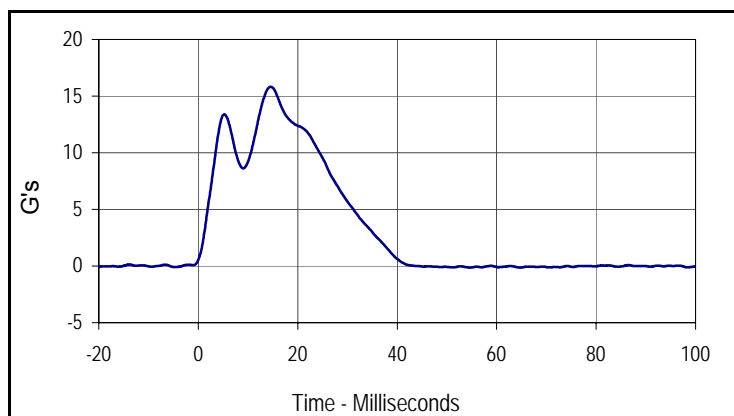
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	455	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass
	Min		34.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.7	Pass
Impactor Velocity	m/s	4.20 to 4.40	4.37	Pass
Peak Shoulder Deflection	mm	28 to 37	31.4	Pass
Peak Lateral Spine Acceleration Y	G's	17 to 22	17.8	Pass
Peak Impactor Acceleration	G's	13 to 18	15.8	Pass
Overall Test Results			Pass	Pass



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
31.4	18.7	0.0	-2.5



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
17.8	15.8	-7.9	41.6



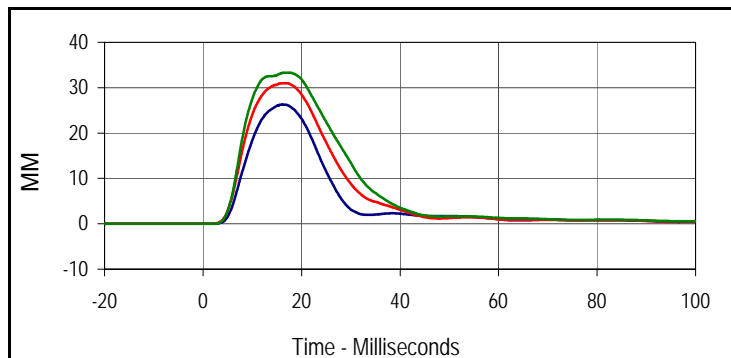
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
15.8	14.6	-0.1	64.8

Test Program: SID IIs Thorax with Arm Impact Test  
 ATD Serial No.: 307

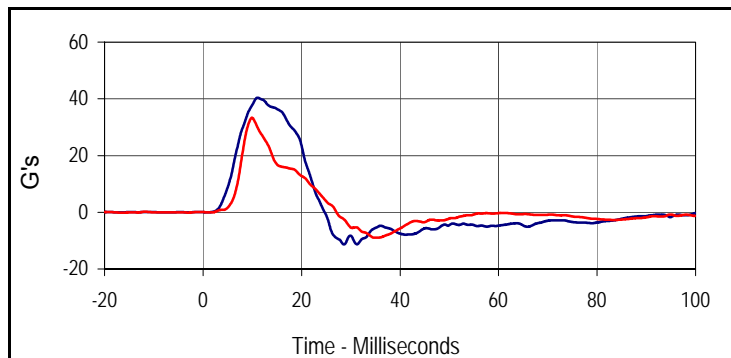
Test Date: 11/19/13  
 Test I.D.: 307TWA059



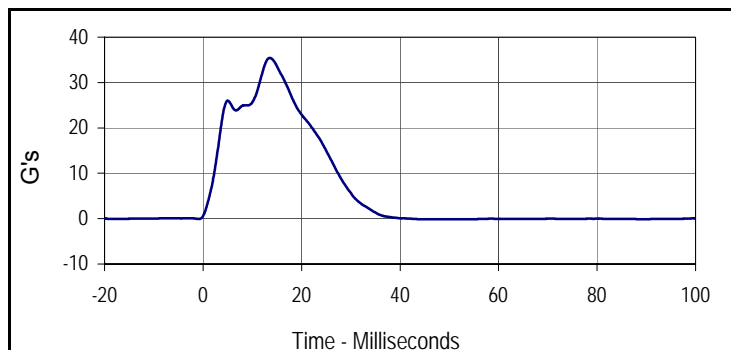
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	500	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass
	Min		34.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.7	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.76	Pass
Peak Shoulder Deflection	mm	31 to 40	34.2	Pass
Peak Upper Thorax Rib Deflection	mm	25 to 32	26.3	Pass
Peak Middle Thorax Rib Deflection	mm	30 to 36	31.0	Pass
Peak Lower Thorax Rib Deflection	mm	32 to 38	33.3	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	40.4	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	33.3	Pass
Peak Impactor Acceleration	G's	30 to 36	35.4	Pass
<b>Overall Test Results</b>				<b>Pass</b>



Curve Description			
<b>Upper Thorax Deflection</b>			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
26.3	16.2	0.0	-12.6
<b>Middle Thorax Deflection</b>			
Max	Time	Min	Time
31.0	16.4	0.0	-10.3
<b>Lower Thorax Deflection</b>			
Max	Time	Min	Time
33.3	16.5	0.0	-13.5



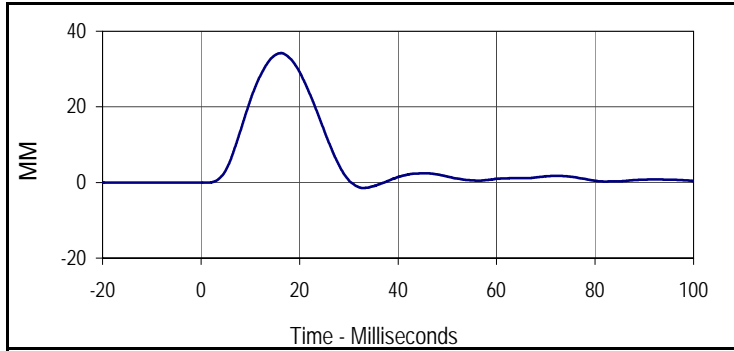
Curve Description			
<b>Upper Spine Y Acceleration</b>			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
40.4	11.0	-11.3	28.6
<b>Lower Spine Y Acceleration</b>			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
33.3	9.9	-9.0	34.9



Curve Description			
<b>Impactor Acceleration</b>			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
35.4	13.6	-0.2	54.2

Test Program: SID IIs Thorax with Arm Impact Test  
 ATD Serial No.: 307

Test Date: 11/19/13  
 Test I.D.: 307TWA059



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
007	FIL	600	MM
Max	Time	Min	Time
34.2	16.3	-1.5	32.9

Test Program: SID IIs Thorax without Arm Impact Test

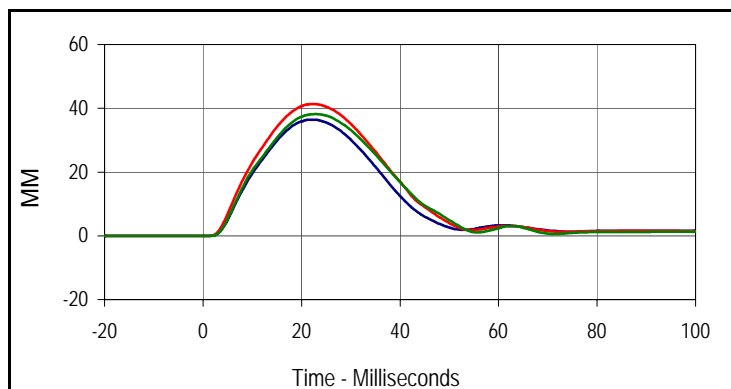
Test Date: 11/19/13



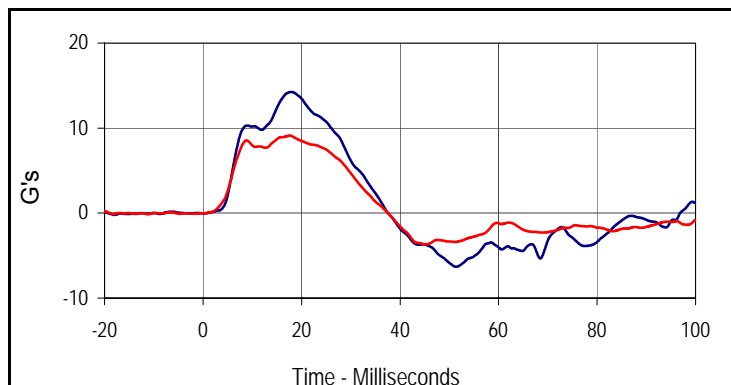
ATD Serial No.: 307

Test I.D.: 307TWOA059

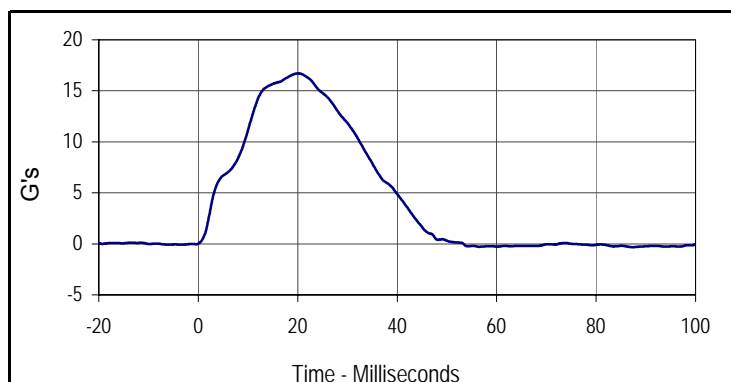
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	550	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass
	Min		34.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.6	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.24	Pass
Peak Upper Thorax Rib Deflection	mm	32 to 40	36.5	Pass
Peak Middle Thorax Rib Deflection	mm	39 to 45	41.3	Pass
Peak Lower Thorax Rib Deflection	mm	35 to 43	38.2	Pass
Peak Upper Spine Y Acceleration	G's	13 to 17	14.3	Pass
Peak Lower Spine Y Acceleration	G's	7 to 11	9.1	Pass
Peak Impactor Acceleration	G's	14 to 18	16.7	Pass
Overall Test Results				Pass



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
36.5	22.2	0.0	-2.7
Middle Thorax Deflection			
Max	Time	Min	Time
41.3	22.2	0.0	-5.6
Lower Thorax Deflection			
Max	Time	Min	Time
38.2	22.9	0.0	-9.0



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
14.3	17.9	-6.3	51.4
Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
9.1	17.6	-3.7	45.3



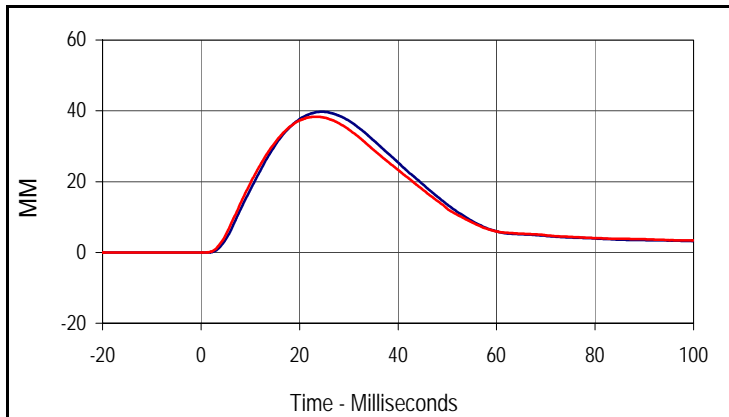
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
16.7	20.1	-0.3	87.4

Test Program: SID IIs Abdomen Impact Test  
 ATD Serial No.: 307

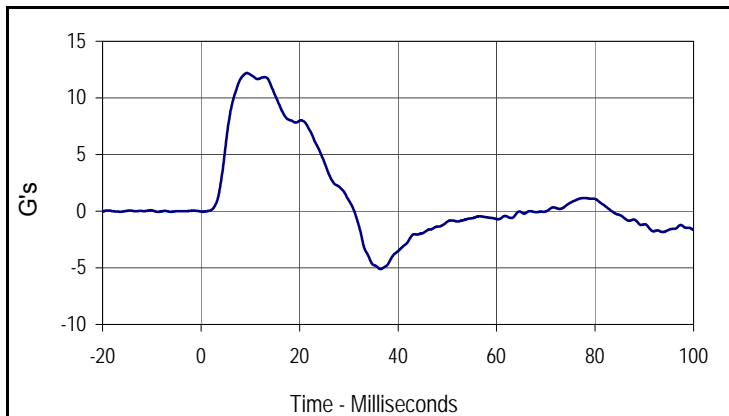
Test Date: 11/19/13  
 Test I.D.: 307ABD059



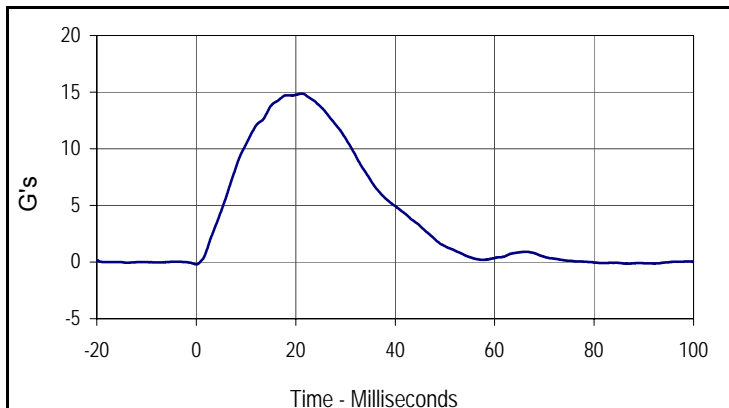
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	585	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass
	Min		34.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.7	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.27	Pass
Peak Upper Abdominal Rib Deflection	mm	36 to 47	39.7	Pass
Peak Lower Abdominal Rib Deflection	mm	33 to 44	38.3	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	12.2	Pass
Peak Impactor Acceleration	G's	12 to 16	14.9	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
39.7	24.6	0.0	-20.0
Curve Description			
Lower Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
38.3	23.2	0.0	-19.3

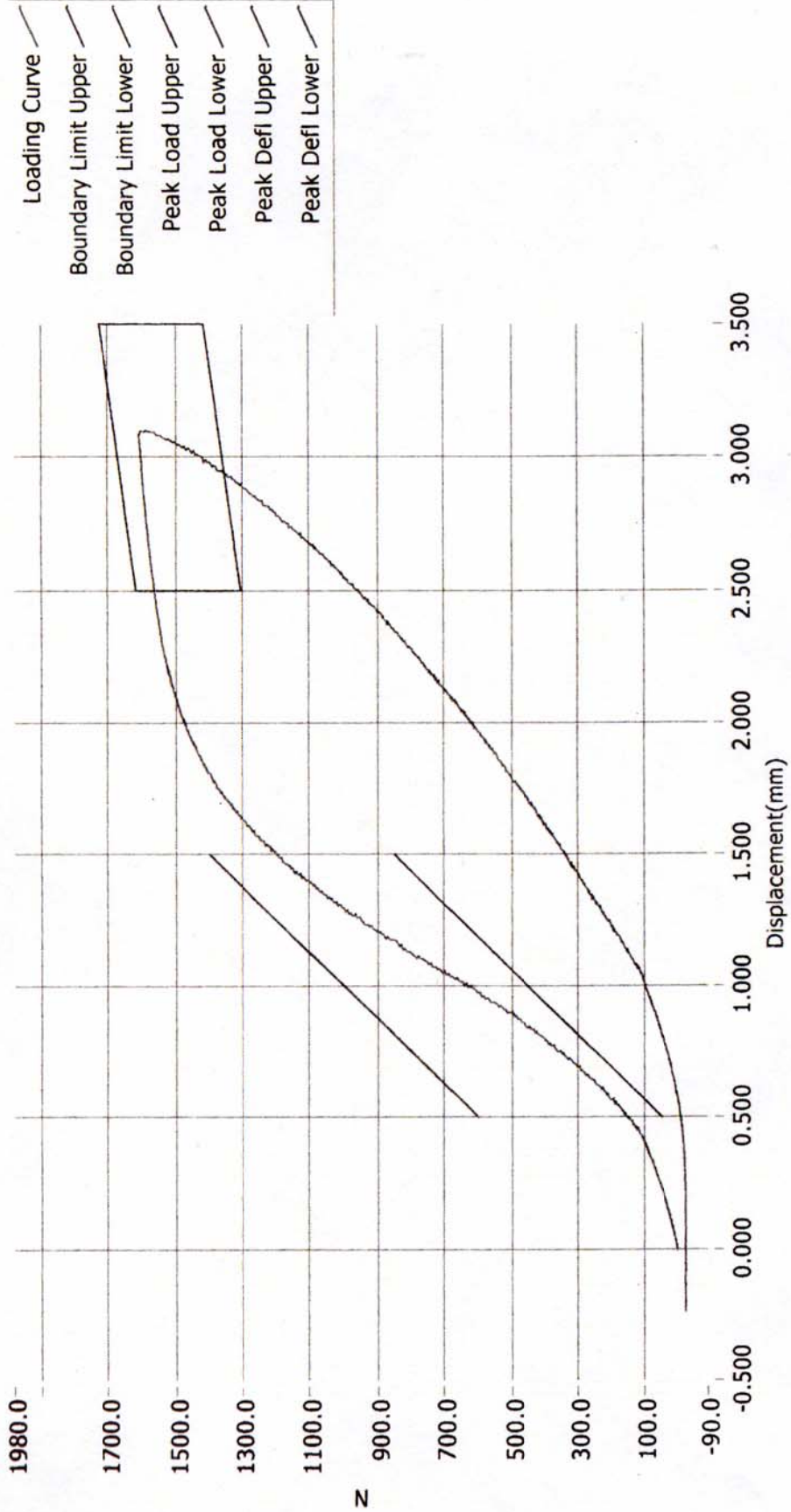


Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
12.2	9.3	-5.1	36.4



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
14.9	21.1	-0.2	0.0

# 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>
	48990	12/6/2011	10:53 PM
<u>Cert ID</u>	<u>ATD Serial Number</u>	<u>ATD Type</u>	
	N/A	SIDIIs	

**O20145801 PRE TEST**

Current Date : 12/6/2011

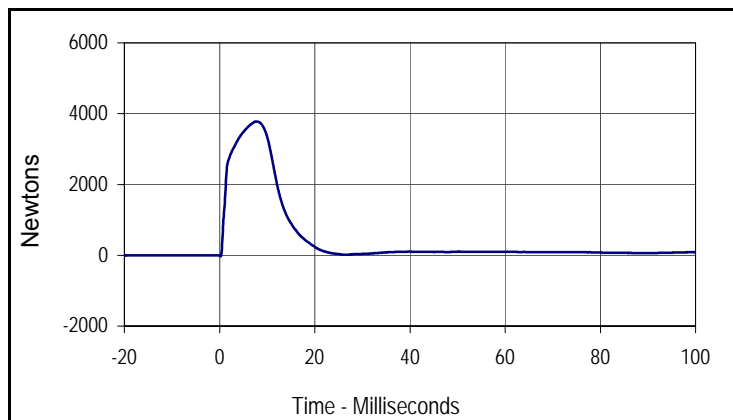
Current Time : 22:54:09

Test Program: SID IIs Pelvis Acetabulum Impact Test  
 ATD Serial No.: 307

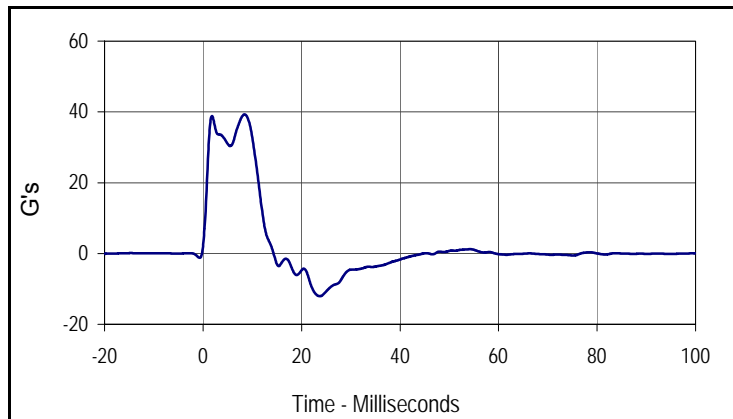
Test Date: 11/19/13  
 Test I.D.: 307ACET059



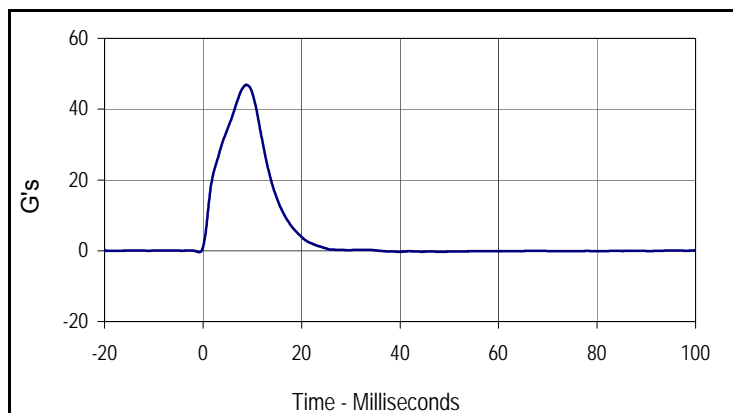
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	630	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass
	Min		34.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.7	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.68	Pass
Peak Acetabulum Force Y	Newtons	3600 to 4300	3777.3	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	39.3	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
3777.3	7.8	-31.4	0.2



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
39.3	8.4	-12.1	23.7



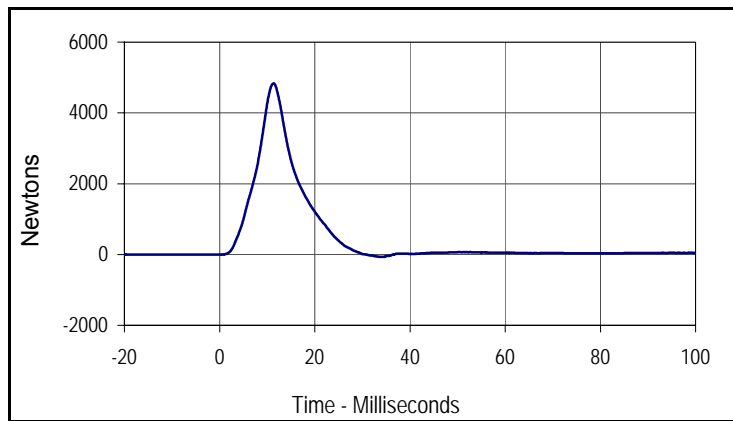
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
46.9	8.8	-0.4	-0.7

Test Program: SID IIs Pelvis Iliac Calibration  
 ATD Serial No.: 307

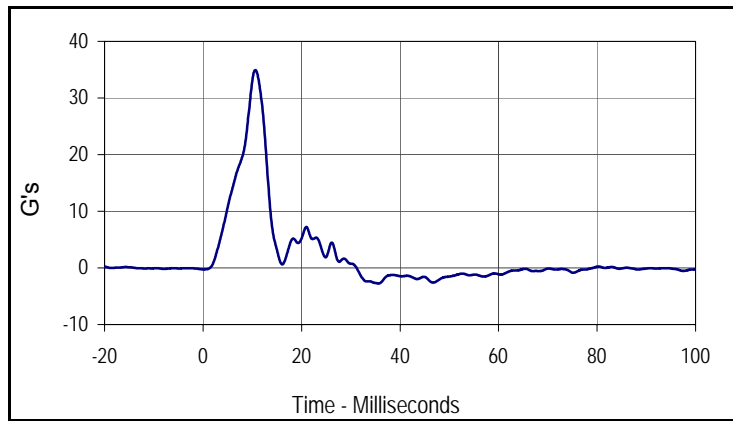
Test Date: 11/19/13  
 Test I.D.: 307PL059



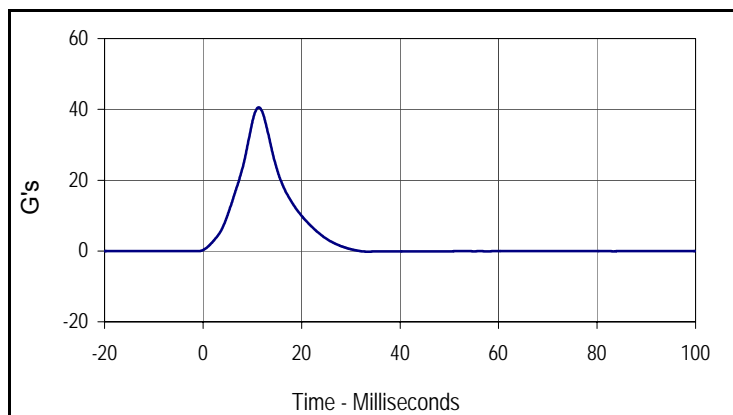
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	700	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass
	Min		34.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.6	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.35	Pass
Peak Iliac Force	Newtons	4100 to 5100	4832.5	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	34.9	Pass
Peak Impactor Acceleration	G's	36 to 45	40.6	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Iliac Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4832.5	11.3	-67.7	34.4



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
34.9	10.6	-2.8	35.6



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
40.6	11.3	-0.2	33.3

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

Test Program: ES2re External Measurements

Test Date: 12/2/13



ATD Serial No.: F037

Test I.D.: N/A

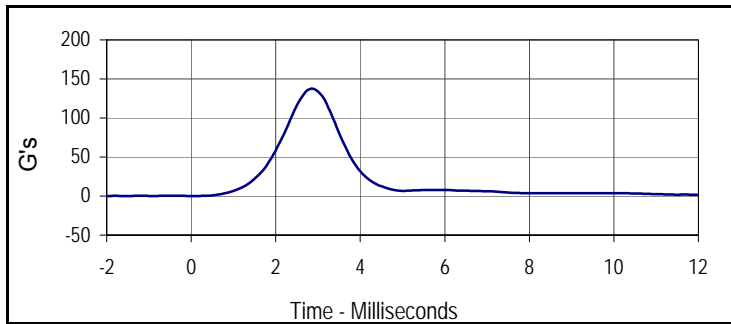
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	30.0	Pass
1 Sitting Height	mm	900 - 918	909	Pass
2 Seat to Shoulder Joint	mm	558 - 572	564	Pass
3 Seat to Lower Face of Thoracic Spine Box	mm	346 - 356	350	Pass
4 Seat to Hip Joint (Center of Bolt)	mm	97 - 103	99	Pass
5 Sole to Seat, Sitting	mm	333 - 451	395	Pass
6 Head Width	mm	152 - 158	156	Pass
7 Shoulder / Arm Width	mm	461 - 479	470	Pass
8 Thorax Width	mm	322 - 332	326	Pass
9 Abdomen Width	mm	273 - 287	280	Pass
10 Pelvis Lap Width	mm	359 - 373	363	Pass
11 Head Depth	mm	196 - 206	201	Pass
12 Thorax Depth	mm	262 - 272	270	Pass
13 Abdomen Width	mm	194 - 204	199	Pass
14 Pelvis Depth	mm	235 - 245	240	Pass
15 Back of Buttocks to Hip Joint (Center of Bolt)	mm	150 - 160	155	Pass
16 Back of Buttocks to Front Knee	mm	597 - 615	608	Pass
Overall Test Results				Pass

Test Program: ES2re Head Drop Test  
 ATD Serial No.: F037

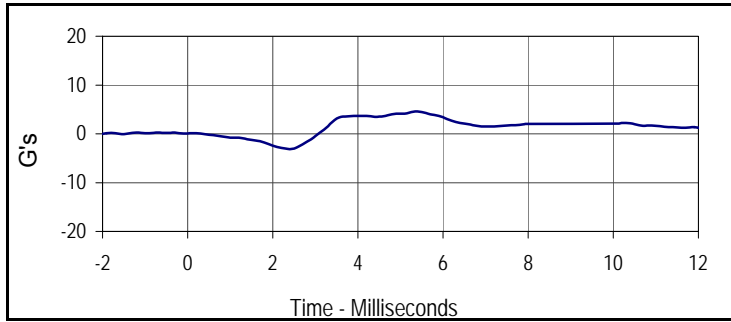
Test Date: 12/2/13  
 Test I.D.: F037HD027



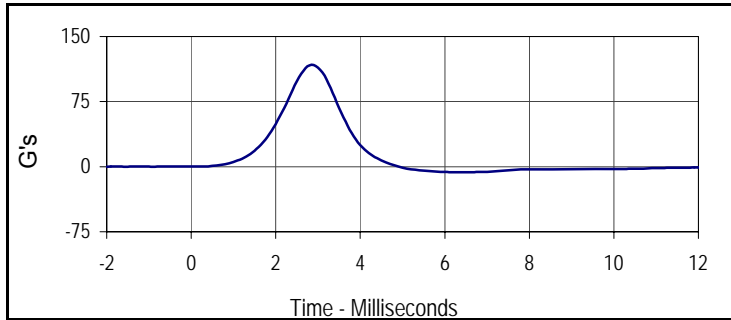
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	425	Pass
Temperature During Soak	Max	20.6 to 22.2	21.9	Pass
	Min		21.7	Pass
Humidity During Soak	Max	10.0 to 70.0	36.2	Pass
	Min		35.3	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.9	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	36.1	Pass
Peak Head Resultant Acceleration	G's	125 to 155	137.3	Pass
Peak Head X Acceleration	G's	≤15	4.6	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	5.8	Pass
Overall Test Results				Pass



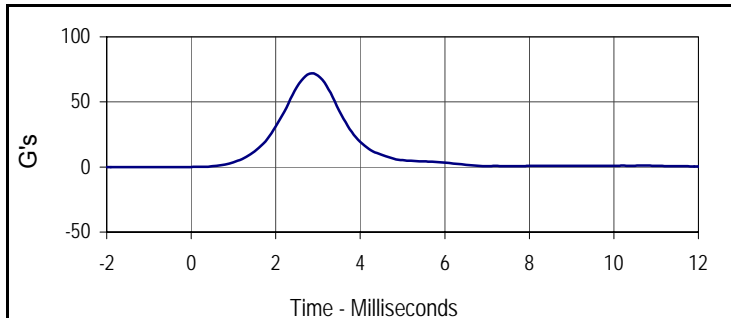
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
137.3	2.9	0.0	-2.0



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
4.6	5.4	-3.1	2.4



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
117.0	2.9	-6.3	6.2



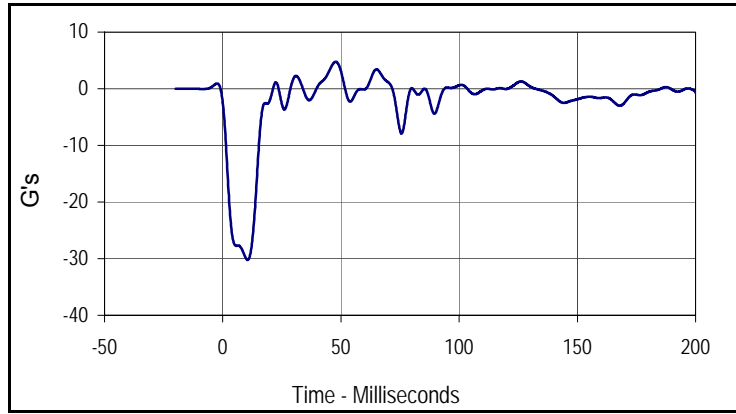
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
71.9	2.9	-0.2	-0.3

Test Program: ES2re Neck Flexion Test  
 ATD Serial No.: F037

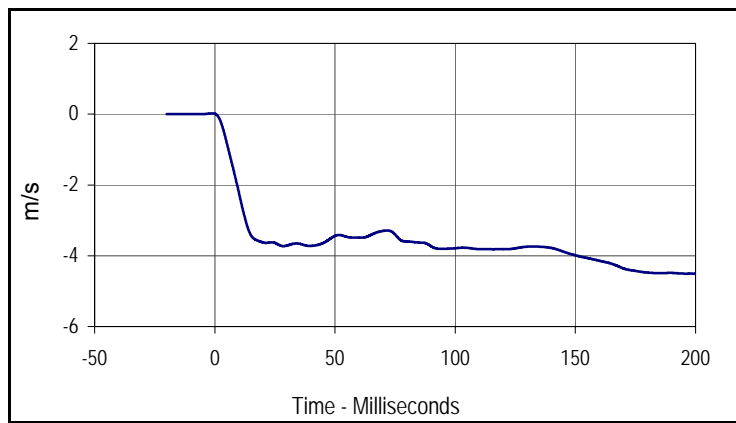
Test Date: 12/2/13  
 Test I.D.: F037NB027



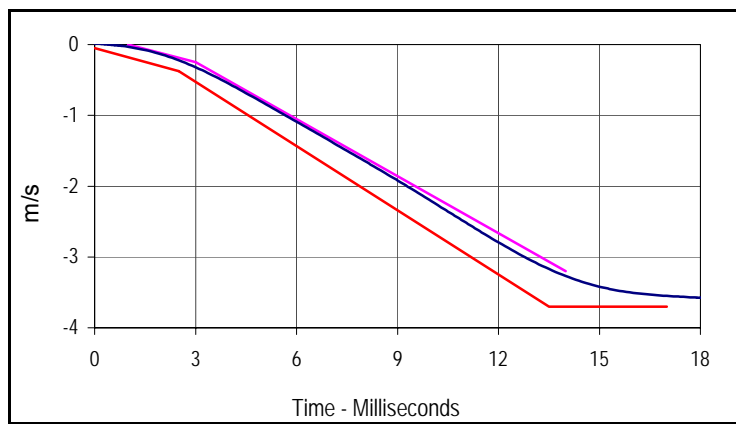
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	460	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.9	Pass	
	Min		21.7	Pass	
Humidity During Soak	Max	10.0 to 70.0	36.2	Pass	
	Min		35.3	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.8	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	36.0	Pass	
Pendulum Velocity	m/s	3.3 to 3.5	3.42	Pass	
Headform Flexion	Max	Degrees	49 to 59	54.6	Pass
	Time	msec	54 to 66	60.4	Pass
Headform Flexion Decay (Peak to Zero)	msec	53 to 88	61.8	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
4.8	47.8	-30.2	10.5



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.0	-4.5	199.9

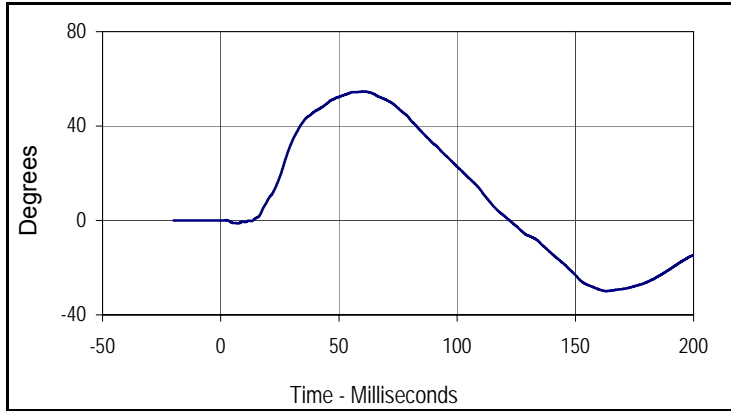


Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.0	-4.5	199.9

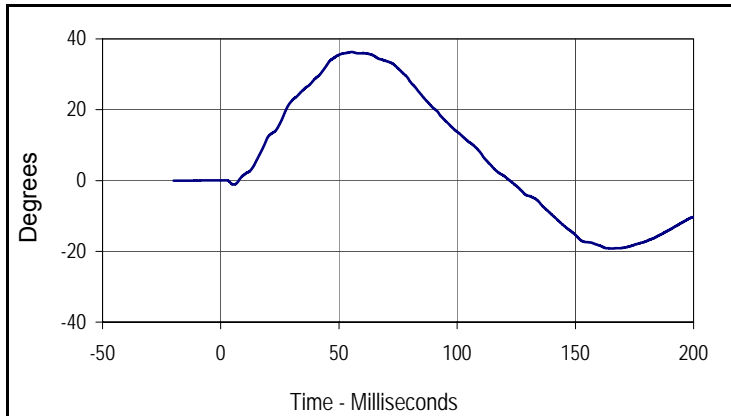
Velocity Corridors			
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.0	-0.03	2.5	-0.375
14.0	-3.20	13.5	-3.70
		17.0	-3.70

Test Program: ES2re Neck Flexion Test  
 ATD Serial No.: F037

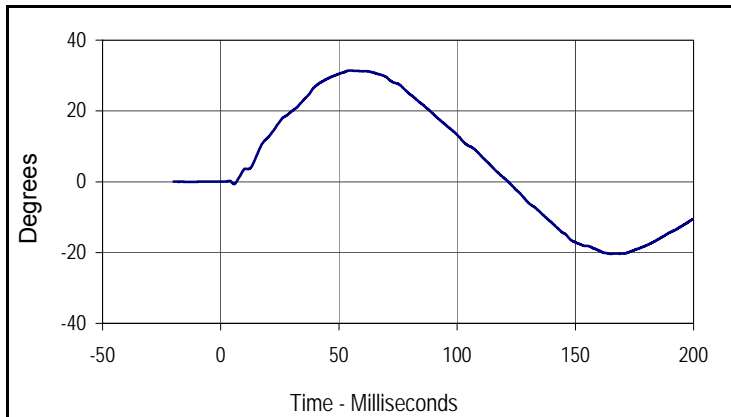
Test Date: 12/2/13  
 Test I.D.: F037NB027



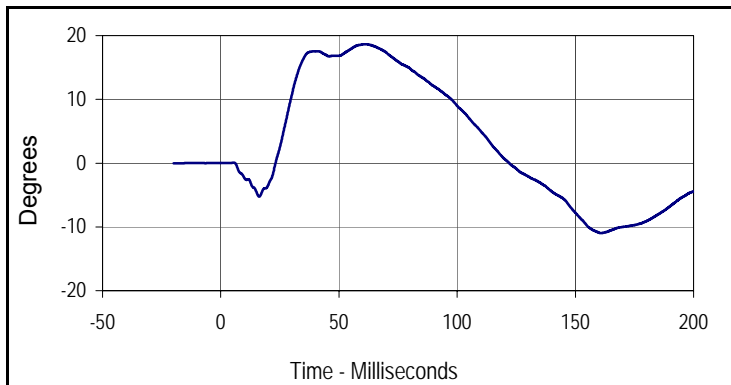
Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	180	Degrees
Max	Time	Min	Time
54.6	60.4	-29.9	163.1



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
004	FIL	180	Degrees
Max	Time	Min	Time
36.3	55.4	-19.2	165.3



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
005	FIL	180	Degrees
Max	Time	Min	Time
31.4	54.8	-20.4	165.0



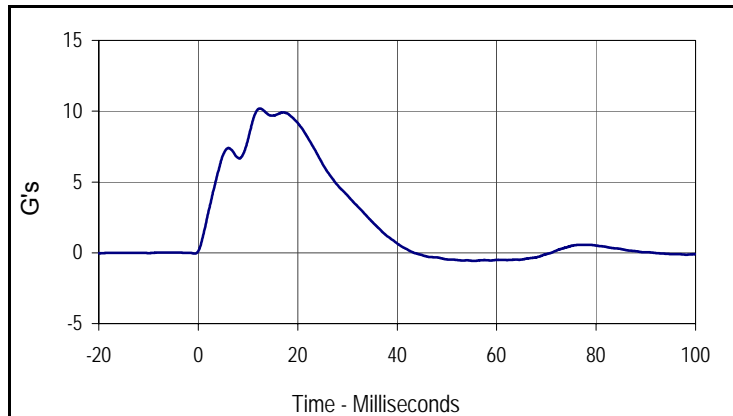
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
006	FIL	180	Degrees
Max	Time	Min	Time
18.7	60.8	-11.0	160.8

Test Program: ES2re Shoulder Impact Test  
 ATD Serial No.: F037

Test Date: 12/2/13  
 Test I.D.: F037SH027



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	525	Pass
Temperature During Soak	Max	20.6 to 22.2	21.9	Pass
	Min		21.7	Pass
Humidity During Soak	Max	10.0 to 70.0	36.2	Pass
	Min		35.3	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.9	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.9	Pass
Pendulum Speed	m/s	4.2 to 4.4	4.27	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	10.2	Pass
Overall Test Results				Pass



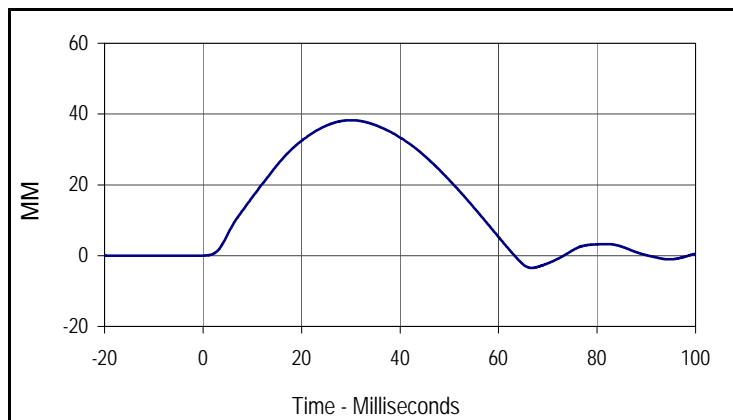
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
10.2	12.4	-0.6	55.6

Test Program: ES2re Thorax - Rib Drop Test  
 ATD Serial No.: F037 Rib # 1

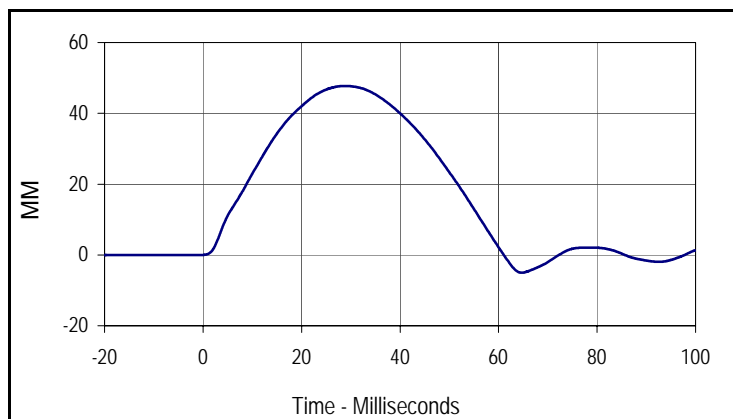
Test Date: 12/2/13  
 Test I.D.: F037RB1027



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	580	Pass
Temperature During Soak	Max	20.6 to 22.2	21.9	Pass
	Min		21.7	Pass
Humidity During Soak	Max	10.0 to 70.0	36.2	Pass
	Min		35.3	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.9	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.8	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	38.3	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	47.7	Pass
Overall Test Results				Pass



Curve Description			
Upper Rib Deflection (459 mm Drop Height)			
Plot No.	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
38.3	30.1	-3.5	66.7



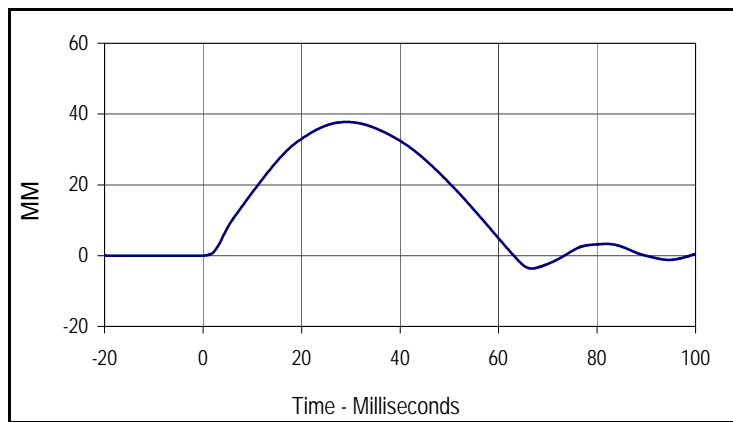
Curve Description			
Upper Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
47.7	28.8	-5.0	64.7

Test Program: ES2re Thorax - Rib Drop Test  
 ATD Serial No.: F037 Rib # 2

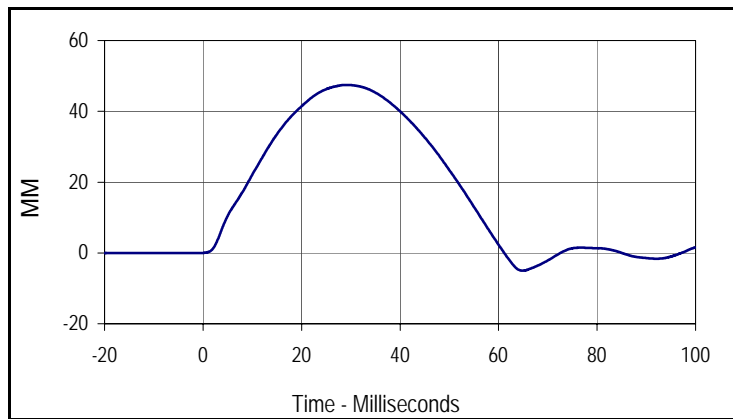
Test Date: 12/2/13  
 Test I.D.: F037RB2027



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	625	Pass
Temperature During Soak	Max	20.6 to 22.2	21.9	Pass
	Min		21.7	Pass
Humidity During Soak	Max	10.0 to 70.0	36.2	Pass
	Min		35.3	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.8	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.7	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	37.8	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	47.5	Pass
Overall Test Results				Pass



Curve Description			
Middle Rib Deflection (459 mm Drop Height)			
Plot No.	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
37.8	29.2	-3.7	66.7



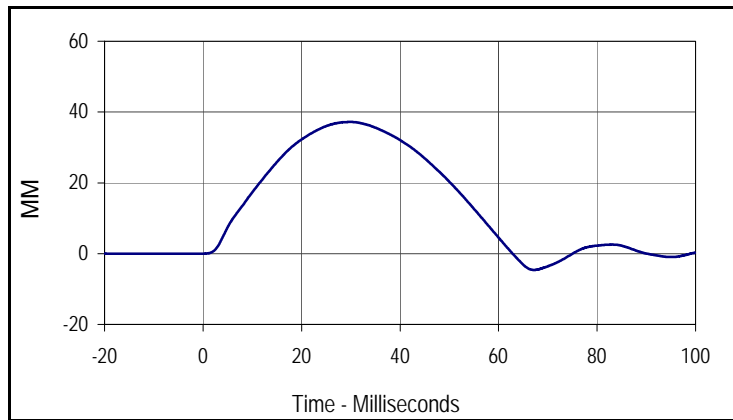
Curve Description			
Middle Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
47.5	29.1	-5.0	64.9

Test Program: ES2re Thorax - Rib Drop Test  
 ATD Serial No.: F037 Rib # 3

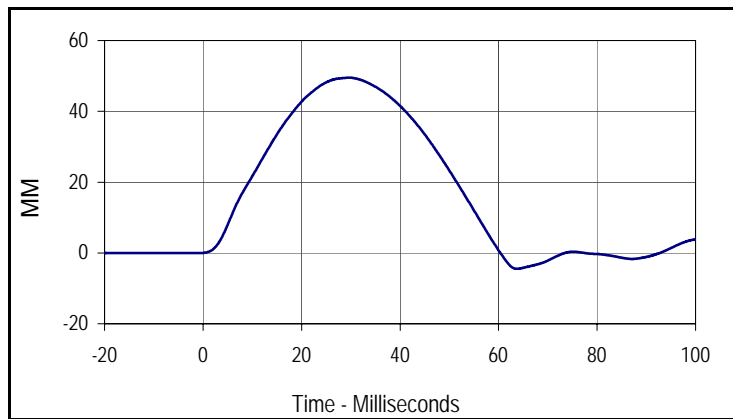
Test Date: 12/2/13  
 Test I.D.: F037RB3027



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	670	Pass
Temperature During Soak	Max	20.6 to 22.2	21.9	Pass
	Min		21.7	Pass
Humidity During Soak	Max	10.0 to 70.0	36.2	Pass
	Min		35.3	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.9	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.6	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	37.2	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	49.5	Pass
Overall Test Results				Pass



Curve Description			
Lower Rib Deflection (459 mm Drop Height)			
Plot No.	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
37.2	29.9	-4.6	67.2



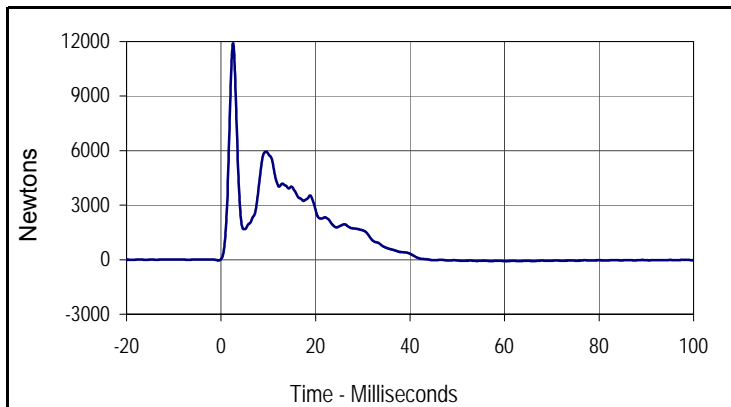
Curve Description			
Lower Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
49.5	29.7	-4.5	63.7

Test Program: ES2re Thorax - Full Body Impact Test  
 ATD Serial No.: F037

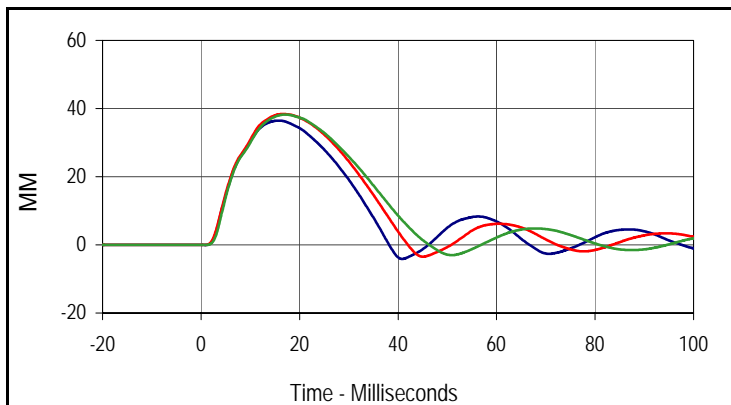
Test Date: 12/2/13  
 Test I.D.: F037TH027



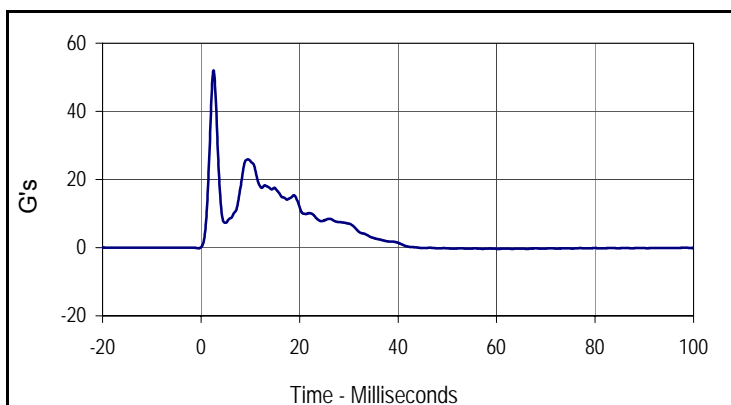
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	715	Pass
Temperature During Soak	Max	20.6 to 22.2	21.9	Pass
	Min		21.7	Pass
Humidity During Soak	Max	10.0 to 70.0	36.2	Pass
	Min		35.3	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.9	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.5	Pass
Peak Impactor Velocity	m/s	5.4 to 5.6	5.47	Pass
Peak Impactor Force	N	5100 to 6200	5937.8	Pass
	msec	> 6.0 msec	9.5	Pass
Peak Upper Rib Deflection	mm	34 to 41	36.5	Pass
Peak Middle Rib Deflection	mm	37 to 45	38.4	Pass
Peak Lower Rib Deflection	mm	37 to 44	38.2	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
11899.1	2.5	-81.1	60.3



Curve Description			
Upper, Middle, Lower Rib Deflections			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max (Upper)	Time	Min (Upper)	Time
36.5	15.8	-4.1	40.8
Max (Middle)	Time	Min (Middle)	Time
38.4	16.6	-3.5	45.1
Max (Lower)	Time	Min (Lower)	Time
38.2	17.1	-3.0	50.9



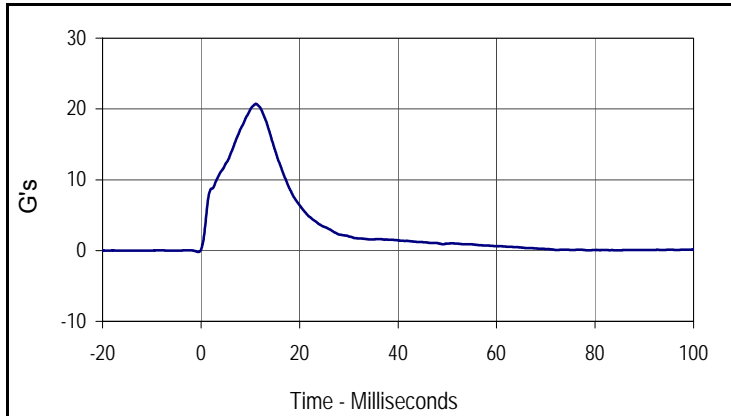
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
51.9	2.5	-0.4	60.3

Test Program: ES2re Abdomen Impact Test  
 ATD Serial No.: F037

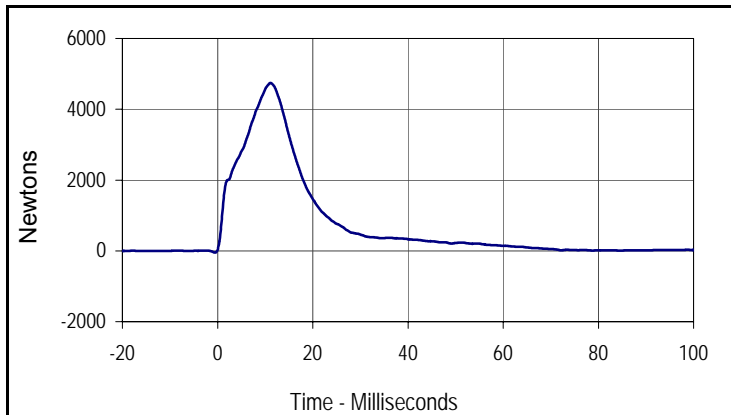
Test Date: 12/2/13  
 Test I.D.: F037ABD027



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	785	Pass
Temperature During Soak	Max	20.6 to 22.2	21.9	Pass
	Min		21.7	Pass
Humidity During Soak	Max	10.0 to 70.0	36.2	Pass
	Min		35.3	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.9	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.5	Pass
Probe Velocity	m/s	3.9 to 4.1	4.07	Pass
Peak Impactor Force	N	4000 to 4800	4744.7	Pass
	msec	10.6 to 13.0	11.1	Pass
Sum of Abdominal Forces	N	2200 to 2700	2688.1	Pass
	msec	10.0 to 12.3	10.4	Pass
Overall Test Results				Pass



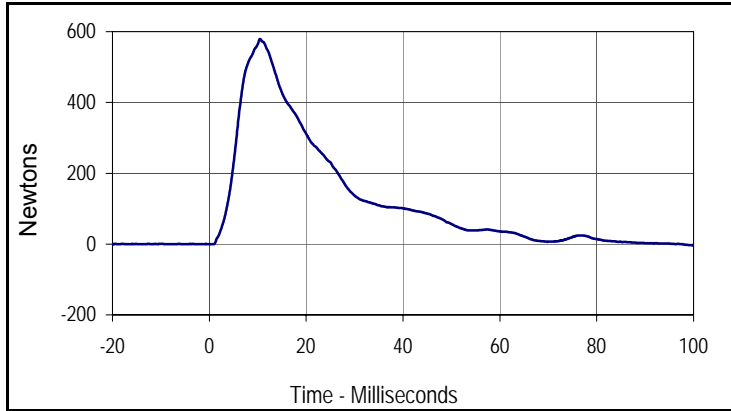
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
20.7	11.1	-0.2	-0.5



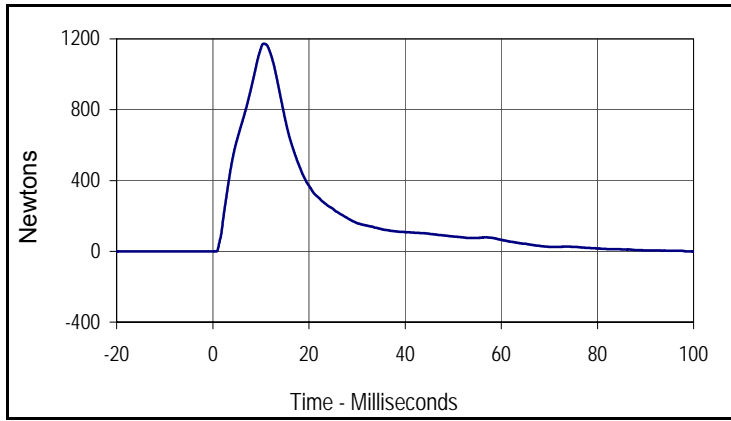
Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
4744.7	11.1	-46.4	-0.5

Test Program: ES2re Abdomen Impact Test  
 ATD Serial No.: F037

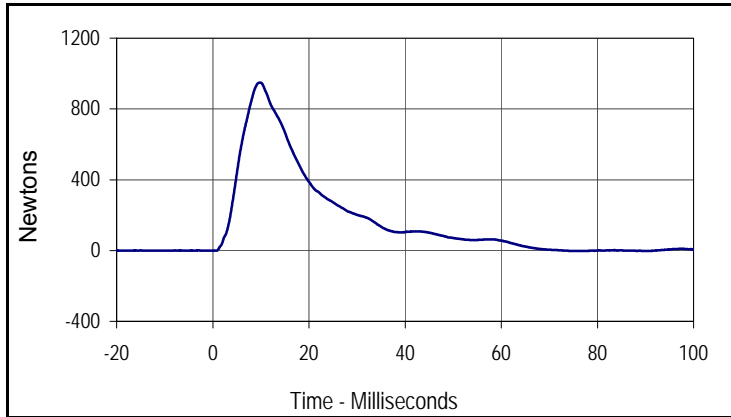
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 Test I.D.: F037ABD027



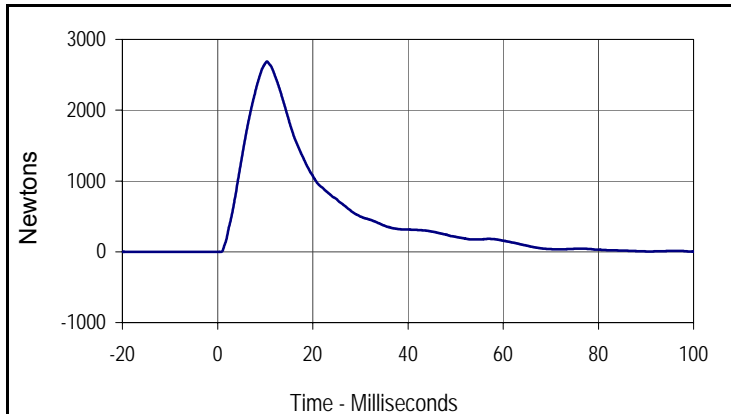
Curve Description			
Front Abdomen Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
579.4	10.5	-9.9	108.9



Curve Description			
Middle Abdomen Force			
Plot No.	Type	SAE Class	Units
004	FIL	600	Newtons
Max	Time	Min	Time
1173.5	10.5	-6.4	109.7



Curve Description			
Rear Abdomen Force			
Plot No.	Type	SAE Class	Units
005	FIL	600	Newtons
Max	Time	Min	Time
949.2	9.8	-5.7	176.8



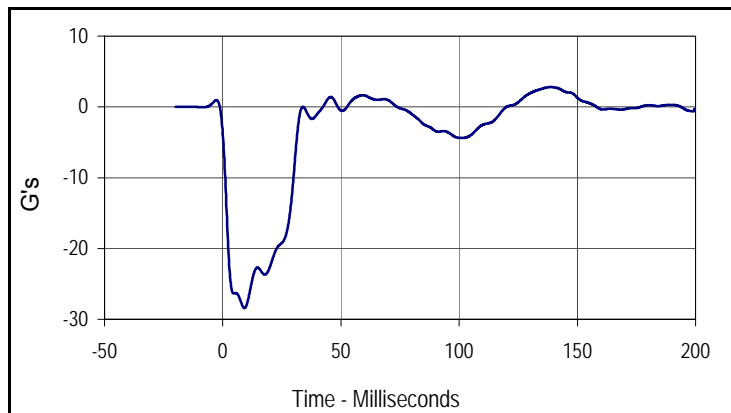
Curve Description			
Abdomen Sum Resultant			
Plot No.	Type	SAE Class	Units
006	RES	600	Newtons
Max	Time	Min	Time
2688.1	10.4	-7.0	101.3

Test Program: ES2re Lumbar Flexion Test  
 ATD Serial No.: F037

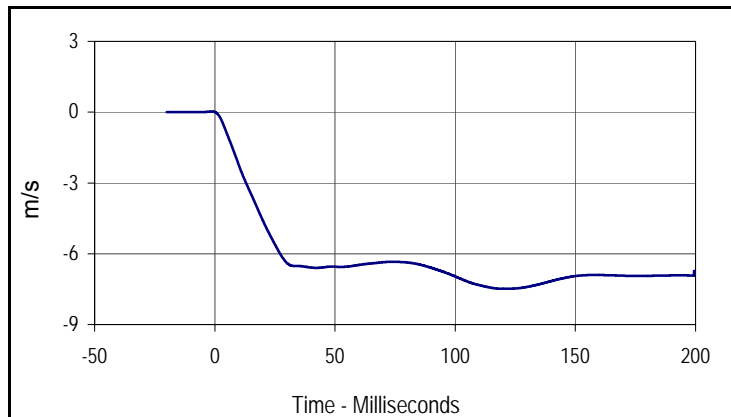
Test Date: 12/2/13  
 Test I.D.: F037LB027



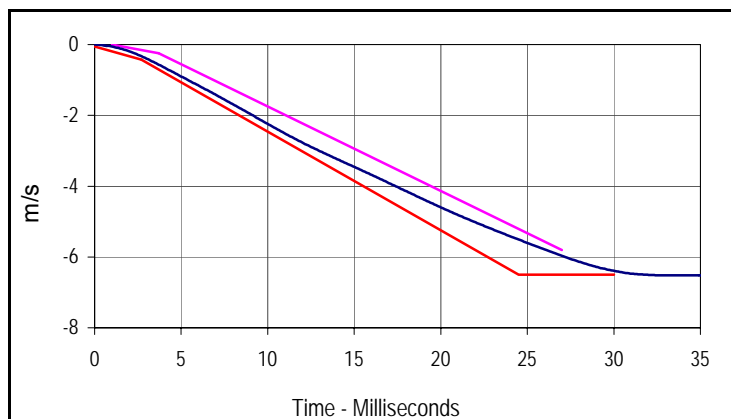
Tested Parameter	Units	Specification	Result	Pass/Fail	
Lumbar Spine Assembly Soak Time	Minutes	≥240	860	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.9	Pass	
	Min		21.7	Pass	
Humidity During Soak	Max	10.0 to 70.0	36.2	Pass	
	Min		35.3	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.9	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	35.4	Pass	
Pendulum Velocity	m/s	5.95 to 6.15	6.09	Pass	
Headform Rotation	Max	Degrees	45 to 55	49.6	Pass
	Time	msec	39 to 53	40.2	Pass
Time of Decay to Zero Angle from Peak	msec	37 to 57	46.1	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
2.8	139.3	-28.4	9.8



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.6	-7.5	120.6



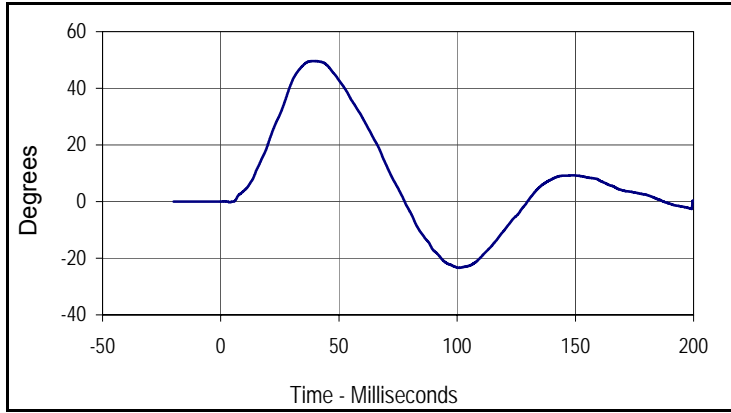
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.6	-7.5	120.6

Velocity Corridors

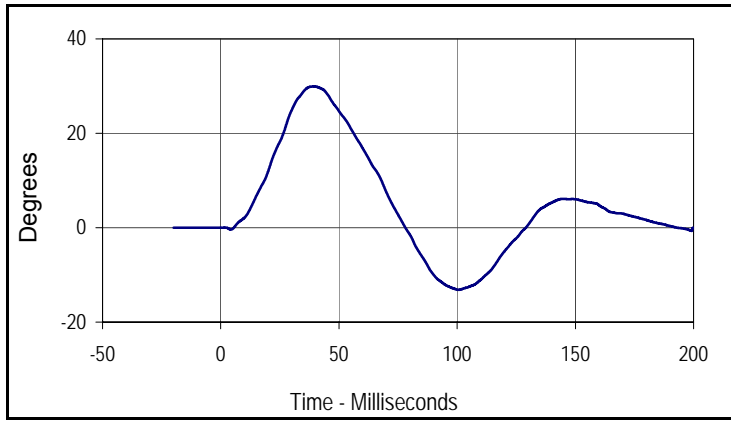
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.7	-0.24	2.7	-0.425
27.0	-5.80	24.5	-6.50
		30.0	-6.50

Test Program: ES2re Lumbar Flexion Test  
 ATD Serial No.: F037

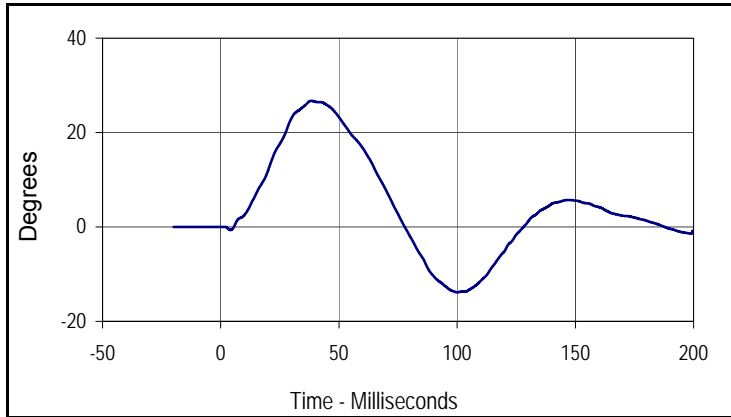
Test Date: 12/2/13  
 Test I.D.: F037LB027



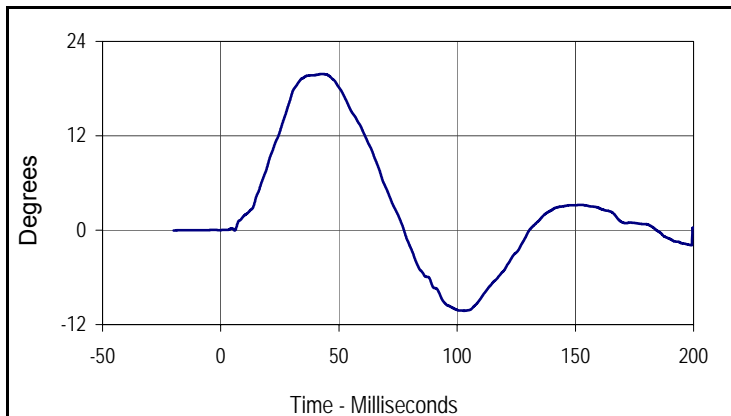
Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	180	Degrees
Max	Time	Min	Time
49.6	40.2	-23.4	101.4



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
004	FIL	180	Degrees
Max	Time	Min	Time
29.9	40.1	-13.1	101.1



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
005	FIL	180	Degrees
Max	Time	Min	Time
26.7	38.9	-13.8	100.6



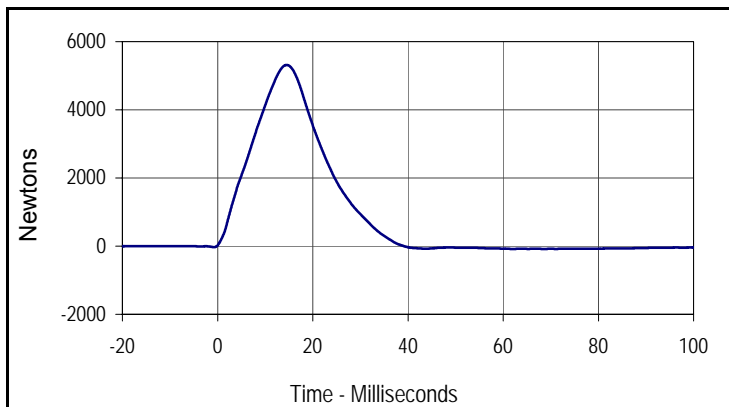
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
006	FIL	180	Degrees
Max	Time	Min	Time
19.9	43.7	-10.2	103.6

Test Program: ES2re Pelvis Impact Test  
 ATD Serial No.: F037

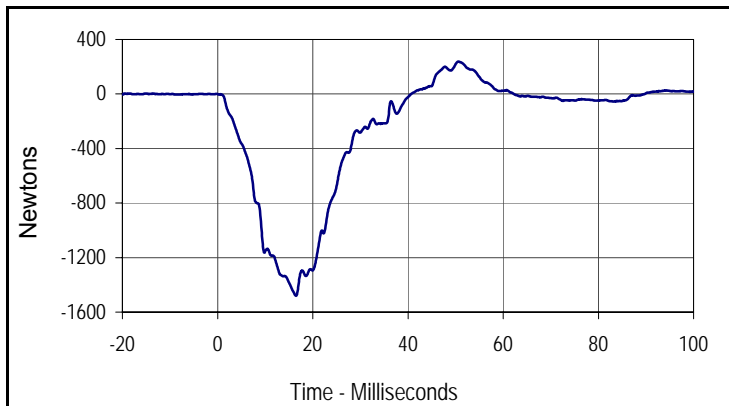
Test Date: 12/2/13  
 Test I.D.: F037PL027



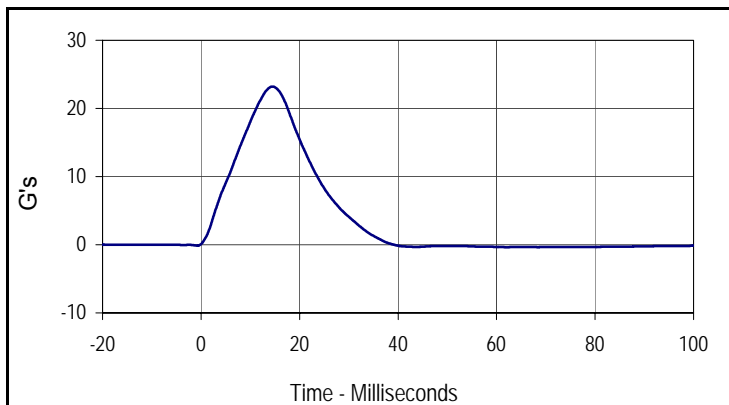
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	915	Pass
Temperature During Soak	Max	20.6 to 22.2	21.9	Pass
	Min		21.7	Pass
Humidity During Soak	Max	10.0 to 70.0	36.2	Pass
	Min		35.3	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.9	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.3	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.36	Pass
Peak Impactor Force	N	4700 to 5400	5317.2	Pass
	msec	11.8 to 16.1	14.5	Pass
Peak Pubic Symphysis Load	N	-1230 to -1590	-1480.0	Pass
	msec	12.2 to 17.0	16.5	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
5317.2	14.5	-82.4	62.2



Curve Description			
Pubic Symphysis Force Y			
Plot No.	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
237.1	50.5	-1480.0	16.5



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
23.2	14.5	-0.4	62.2

Test Program: SID IIs External Measurements

Test Date: 11/29/13



ATD Serial No.: 307

Test I.D.: N/A

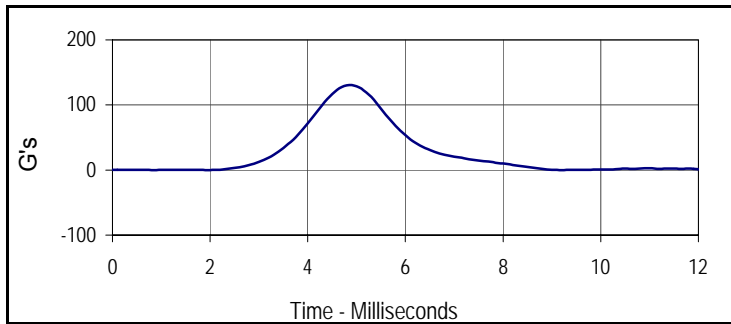
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	35	Pass
A Sitting Height	mm	772 - 788	778	Pass
B Shoulder Pivot Height	mm	437 - 453	443	Pass
C H-Point Height	mm	79 - 89	85	Pass
D H-Point from Seatback	mm	141 - 151	144	Pass
E Shoulder Pivot from Backline	mm	97 - 107	102	Pass
F Thigh Clearance	mm	119 - 135	128	Pass
G Head Breadth	mm	140 - 148	145	Pass
H Head Back from Backline	mm	40 - 46	43	Pass
I Head Depth	mm	178 - 188	185	Pass
J Head Circumference	mm	541 - 551	546	Pass
K Buttock to Knee Length	mm	514 - 540	525	Pass
L Popliteal Height	mm	343 - 369	351	Pass
M Knee Pivot to Floor Height	mm	392 - 409	400	Pass
N Buttock Popliteal Length	mm	416 - 442	432	Pass
O Chest Depth w/o Jacket	mm	195 - 211	205	Pass
P Foot Length	mm	216 - 232	223	Pass
Q Hip Breadth with Pelvic Plug	mm	313 - 323	319	Pass
R Arm Length	mm	249 - 259	254	Pass
S Knee Joint to Seatback	mm	477 - 493	483	Pass
V Shoulder Width	mm	341 - 357	351	Pass
W Foot Width	mm	78 - 94	89	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.: 307

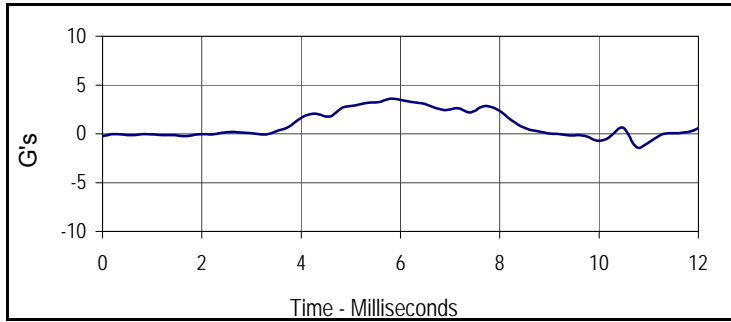
Test Date: 11/29/13  
 Test I.D.: 307HD060



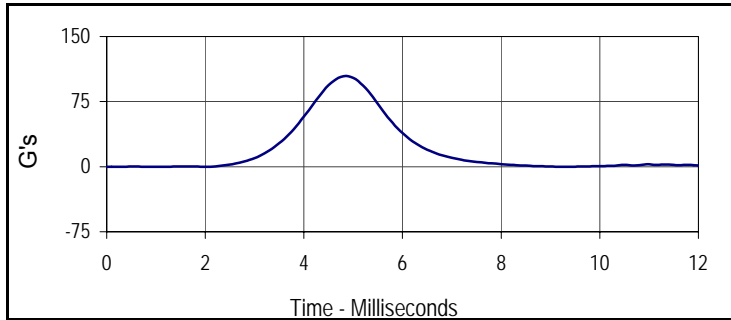
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	300	Pass
Temperature During Soak	Max	18.9 to 25.6	22.0	Pass
	Min		21.8	Pass
Humidity During Soak	Max	10.0 to 70.0	35.2	Pass
	Min		34.7	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	22.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.1	Pass
Peak Head Resultant Acceleration	G's	115 to 137	130.5	Pass
Peak Head X Acceleration	G's	<15	3.6	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	2.3	Pass
<b>Overall Test Results</b>				<b>Pass</b>



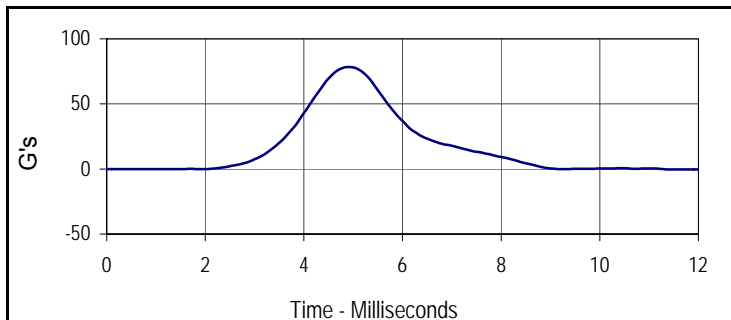
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
130.5	4.9	0.0	0.8



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
3.6	5.8	-0.2	0.0



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
104.3	4.9	-0.1	0.1



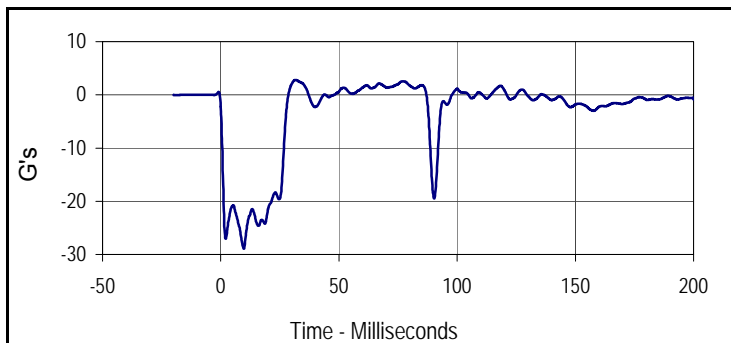
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
78.4	4.9	-0.4	11.7

Test Program: SID IIs Neck Flexion Test  
 ATD Serial No.: 307

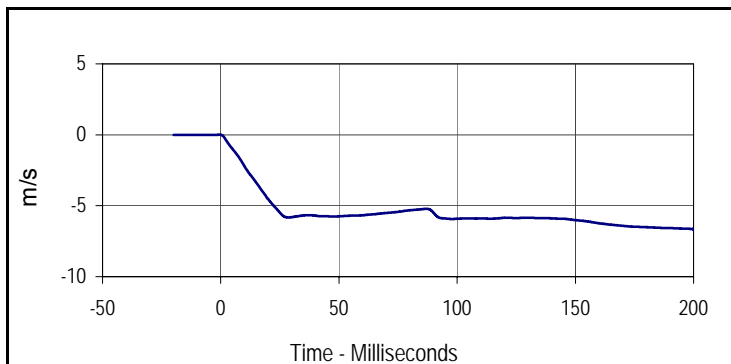
Test Date: 11/29/13  
 Test I.D.: 307NB060



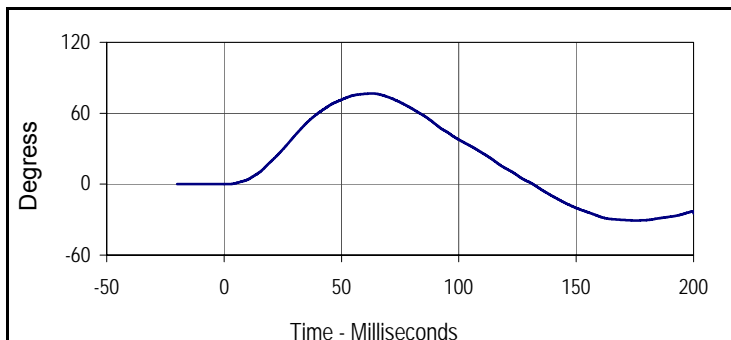
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	375	Pass	
Temperature During Soak	Max	20.6 to 22.2	22.0	Pass	
	Min		21.8	Pass	
Humidity During Soak	Max	10.0 to 70.0	35.2	Pass	
	Min		34.7	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.9	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	35.1	Pass	
Pendulum Velocity	m/s	5.51 to 5.63	5.53	Pass	
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.21	Pass
	15 msec	m/s	-3.30 to -4.10	-3.36	Pass
	20 msec	m/s	-4.40 to -5.40	-4.53	Pass
	25 msec	m/s	-5.40 to -6.10	-5.48	Pass
	25-100 msec	m/s	-5.50 to -6.20	-5.93	Pass
D-Plane Rotation	Max	Degrees	71 to 81	76.7	Pass
	Time	msec	50 to 70	63.1	Pass
Peak Occipital Condyle Moment	Nm	-36 to -44	-42.8	Pass	
Decaying Moment Time to Cross 0 Nm	msec	102 to 126	114.6	Pass	
<b>Overall Test Results</b>				<b>Pass</b>	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
2.8	0.0	-28.9	0.0



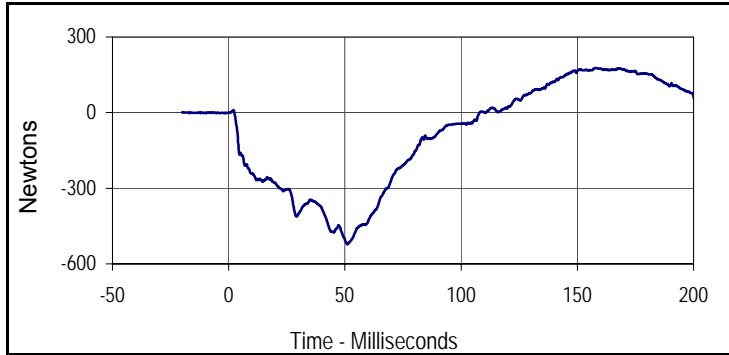
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.4	-6.7	200.0



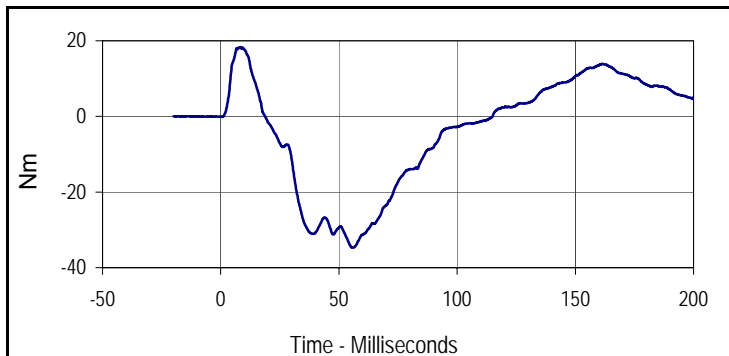
Curve Description			
D-Plane Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	Degress
Max	Time	Min	Time
76.7	63.1	-30.7	175.3

Test Program: SID IIs Neck Flexion Test  
 ATD Serial No.: 307

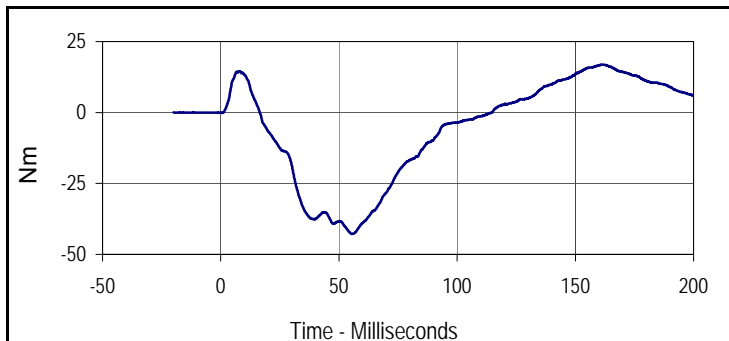
Test Date: 11/29/13  
 Test I.D.: 307NB060



Curve Description			
Neck Force Y			
Plot No.	Type	SAE Class	Units
004	FIL	600	Newtons
Max	Time	Min	Time
177.0	157.8	-522.0	51.1



Curve Description			
Neck Moment X			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
18.3	8.4	-34.7	56.3



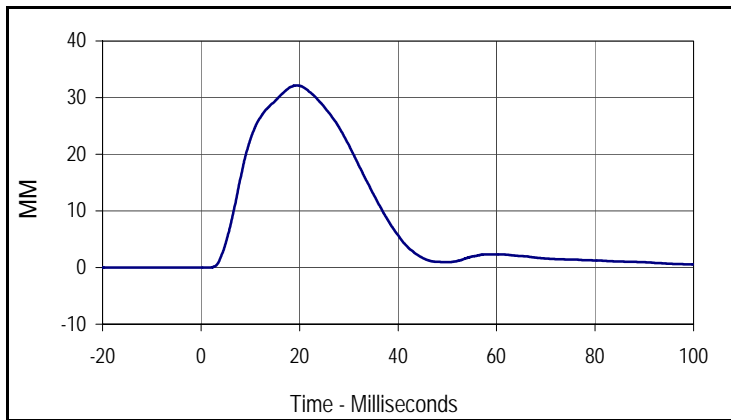
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
006	FIL	600	Nm
Max	Time	Min	Time
16.9	161.7	-42.8	55.5

Test Program: SID IIs Shoulder Impact Test  
 ATD Serial No.: 307

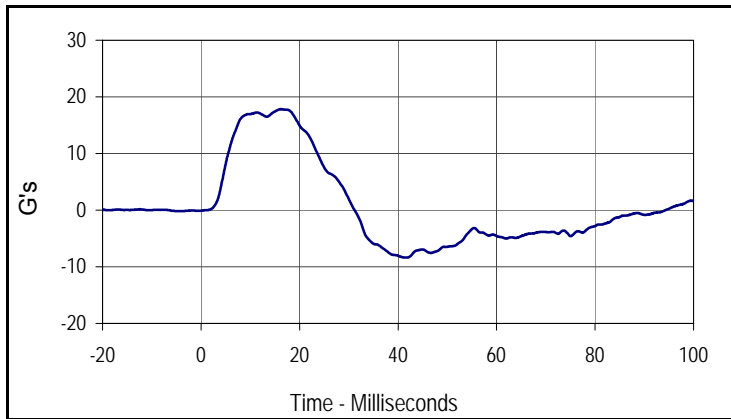
Test Date: 11/29/13  
 Test I.D.: 307SH060



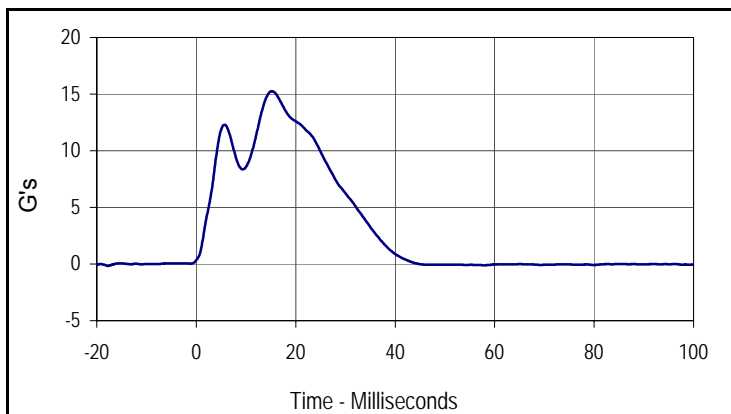
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	430	Pass
Temperature During Soak	Max	20.6 to 22.2	22.0	Pass
	Min		21.8	Pass
Humidity During Soak	Max	10.0 to 70.0	35.2	Pass
	Min		34.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.9	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.0	Pass
Impactor Velocity	m/s	4.20 to 4.40	4.39	Pass
Peak Shoulder Deflection	mm	28 to 37	32.2	Pass
Peak Lateral Spine Acceleration Y	G's	17 to 22	17.8	Pass
Peak Impactor Acceleration	G's	13 to 18	15.3	Pass
Overall Test Results				Pass



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
32.2	19.3	0.0	-11.1



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
17.8	16.2	-8.4	41.7



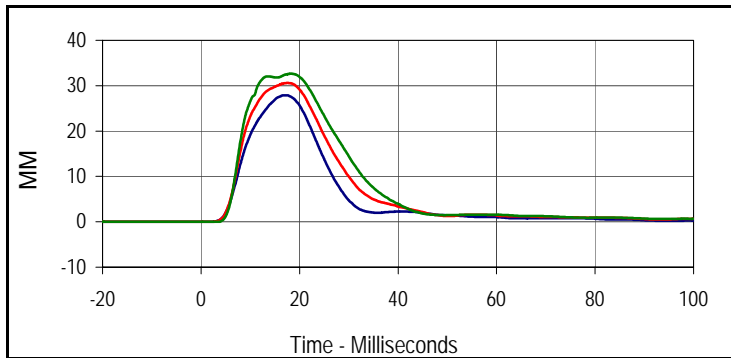
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
15.3	15.2	-0.2	-17.7

Test Program: SID IIs Thorax with Arm Impact Test  
 ATD Serial No.: 307

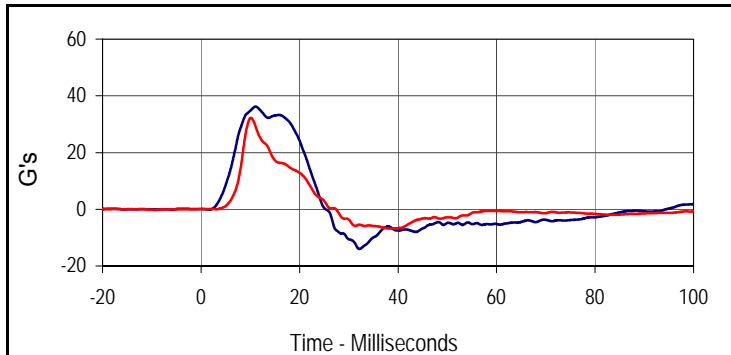
Test Date: 11/29/13  
 Test I.D.: 307TWA060



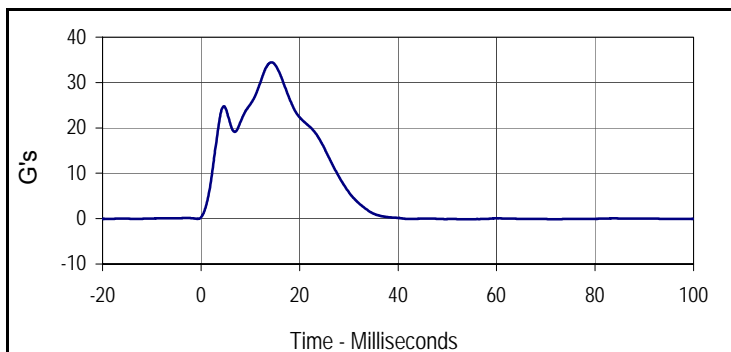
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	475	Pass
Temperature During Soak	Max	20.6 to 22.2	22.0	Pass
	Min		21.8	Pass
Humidity During Soak	Max	10.0 to 70.0	35.2	Pass
	Min		34.7	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	22.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.0	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.74	Pass
Peak Shoulder Deflection	mm	31 to 40	35.5	Pass
Peak Upper Thorax Rib Deflection	mm	25 to 32	27.9	Pass
Peak Middle Thorax Rib Deflection	mm	30 to 36	30.6	Pass
Peak Lower Thorax Rib Deflection	mm	32 to 38	32.6	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	36.2	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	32.2	Pass
Peak Impactor Acceleration	G's	30 to 36	34.4	Pass
<b>Overall Test Results</b>				<b>Pass</b>



Curve Description			
<b>Upper Thorax Deflection</b>			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
27.9	17.1	0.0	-20.0
<b>Middle Thorax Deflection</b>			
Max	Time	Min	Time
30.6	17.5	0.0	-20.0
<b>Lower Thorax Deflection</b>			
Max	Time	Min	Time
32.6	18.2	0.0	-12.3



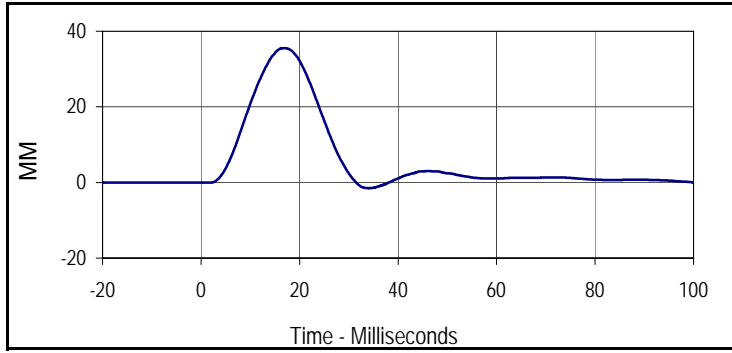
Curve Description			
<b>Upper Spine Y Acceleration</b>			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
36.2	11.1	-14.0	32.1
<b>Lower Spine Y Acceleration</b>			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
32.2	10.1	-6.8	38.5



Curve Description			
<b>Impactor Acceleration</b>			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
34.4	14.3	-0.2	54.3

Test Program: SID IIs Thorax with Arm Impact Test  
 ATD Serial No.: 307

Test Date: 11/29/13  
 Test I.D.: 307TWA060



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
007	FIL	600	MM
Max	Time	Min	Time
35.5	17.0	-1.5	34.1

Test Program: SID IIs Thorax without Arm Impact Test

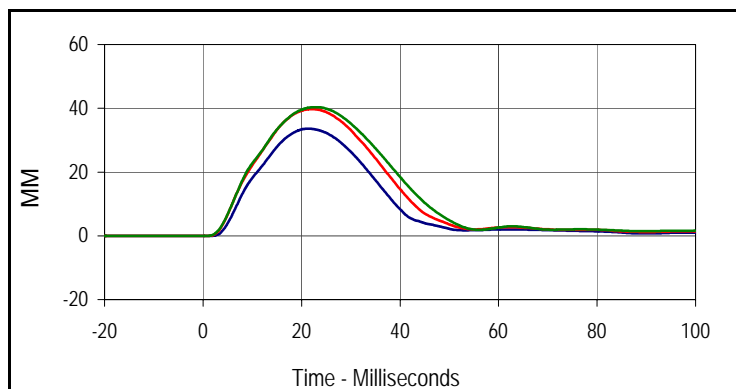
Test Date: 11/29/13



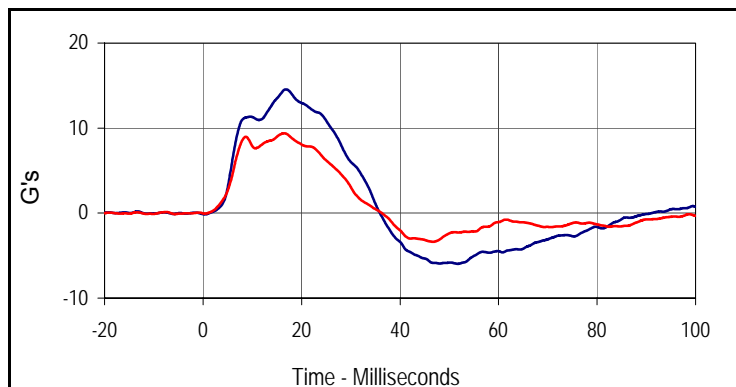
ATD Serial No.: 307

Test I.D.: 307TWOA060

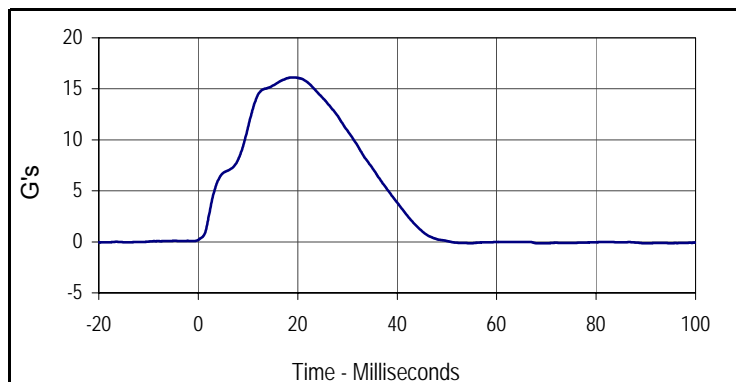
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	525	Pass
Temperature During Soak	Max	18.9 to 25.6	22.0	Pass
	Min		21.8	Pass
Humidity During Soak	Max	10.0 to 70.0	35.2	Pass
	Min		34.7	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.9	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.9	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.22	Pass
Peak Upper Thorax Rib Deflection	mm	32 to 40	33.6	Pass
Peak Middle Thorax Rib Deflection	mm	39 to 45	39.7	Pass
Peak Lower Thorax Rib Deflection	mm	35 to 43	40.4	Pass
Peak Upper Spine Y Acceleration	G's	13 to 17	14.6	Pass
Peak Lower Spine Y Acceleration	G's	7 to 11	9.4	Pass
Peak Impactor Acceleration	G's	14 to 18	16.1	Pass
Overall Test Results				Pass



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
33.6	21.4	0.0	-20.0
Middle Thorax Deflection			
Max	Time	Min	Time
39.7	22.0	0.0	-17.4
Lower Thorax Deflection			
Max	Time	Min	Time
40.4	22.8	0.0	-20.0



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
14.6	16.8	-6.0	51.7
Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
9.4	16.5	-3.4	46.7



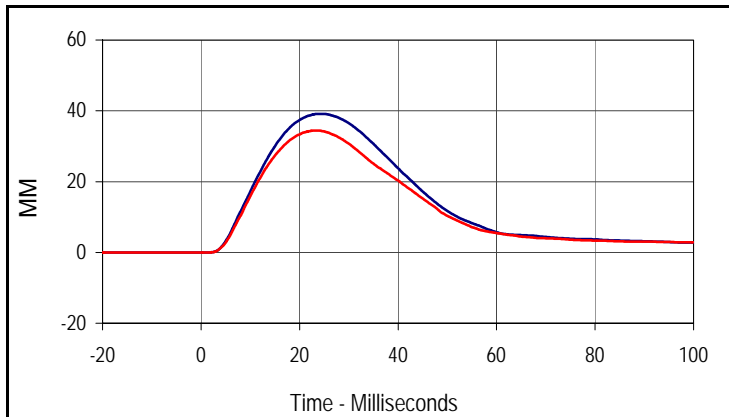
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
16.1	19.0	-0.1	68.2

Test Program: SID IIs Abdomen Impact Test  
 ATD Serial No.: 307

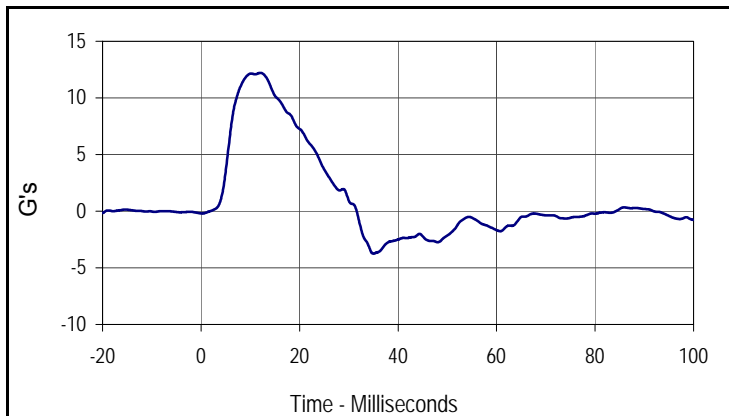
Test Date: 11/29/13  
 Test I.D.: 307ABD060



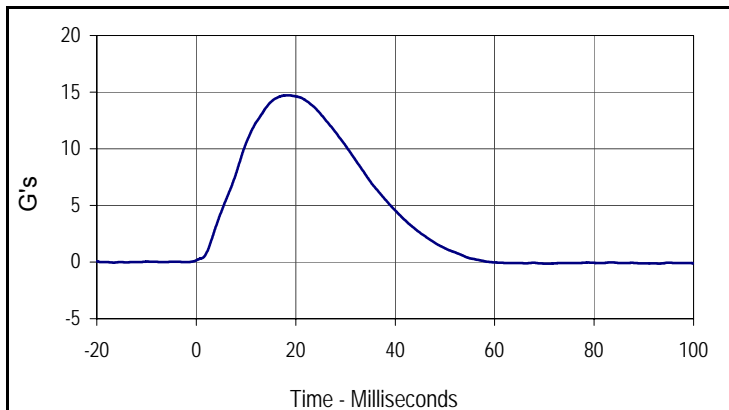
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	560	Pass
Temperature During Soak	Max	20.6 to 22.2	22.0	Pass
	Min		21.8	Pass
Humidity During Soak	Max	10.0 to 70.0	35.2	Pass
	Min		34.7	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.9	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.8	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.31	Pass
Peak Upper Abdominal Rib Deflection	mm	36 to 47	39.2	Pass
Peak Lower Abdominal Rib Deflection	mm	33 to 44	34.5	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	12.2	Pass
Peak Impactor Acceleration	G's	12 to 16	14.7	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
39.2	24.3	0.0	-17.4



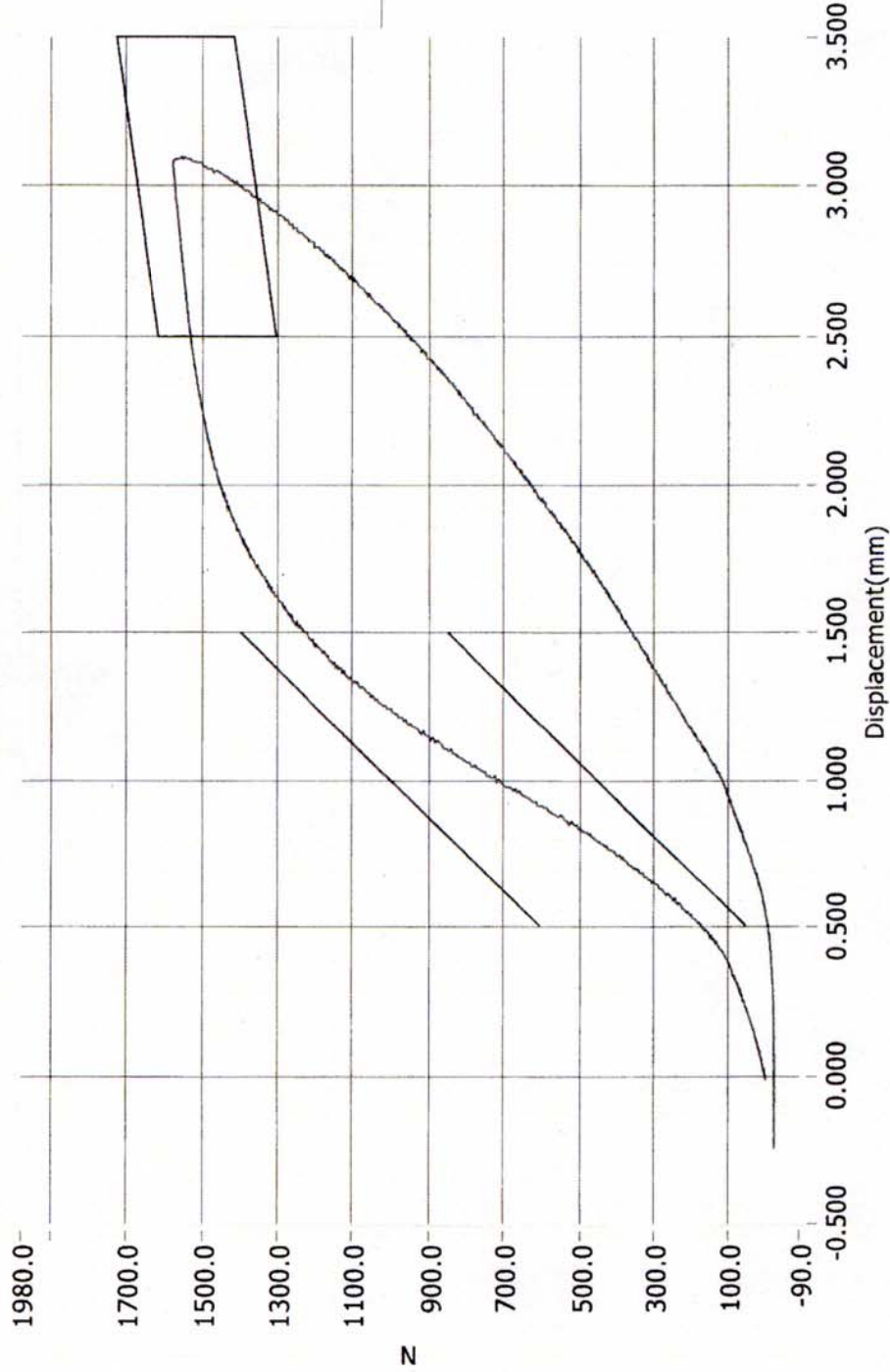
Curve Description			
Lower Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
34.5	23.4	0.0	-13.2



Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
12.2	12.1	-3.7	35.0

Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
14.7	18.6	-0.1	70.4

# Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
	49000	12/6/2011	11:35 PM
Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

**O20145801 POST TEST**

Current Date : 12/6/2011

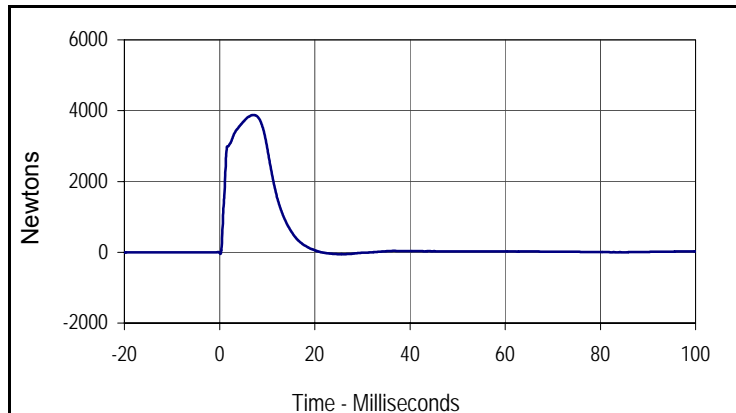
Current Time : 23:35:37

Test Program: SID IIs Pelvis Acetabulum Impact Test  
 ATD Serial No.: 307

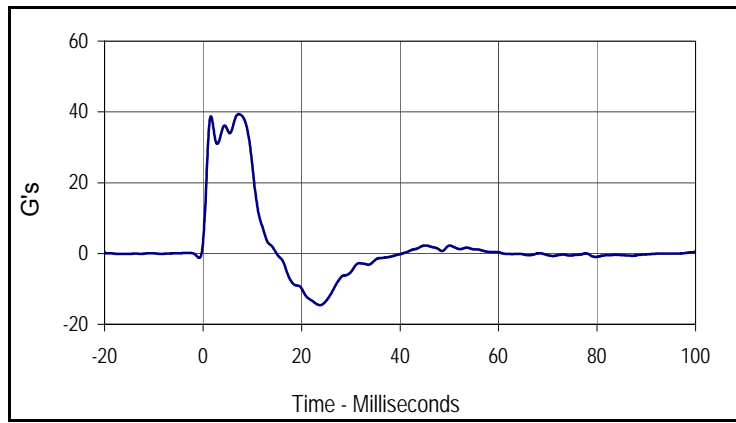
Test Date: 11/29/13  
 Test I.D.: 307ACET060



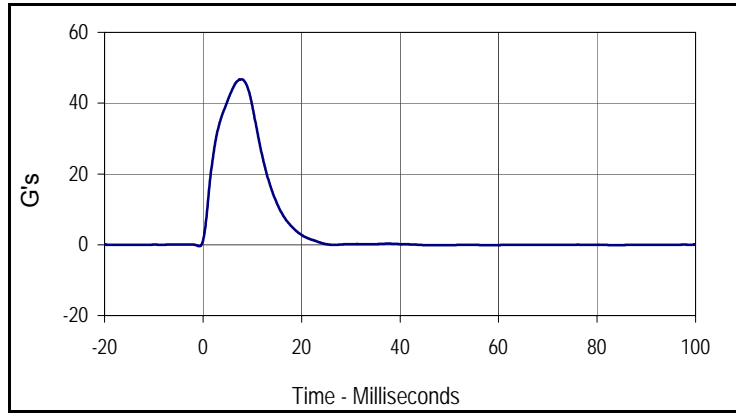
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	605	Pass
Temperature During Soak	Max	20.6 to 22.2	22.0	Pass
	Min		21.8	Pass
Humidity During Soak	Max	10.0 to 70.0	35.2	Pass
	Min		34.7	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.9	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.8	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.71	Pass
Peak Acetabulum Force Y	Newtons	3600 to 4300	3878.0	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	39.4	Pass
Peak Impactor Acceleration	G's	38 to 47	46.8	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Acetabulum Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3878.0	7.1	-56.7	25.2



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
39.4	7.2	-14.6	23.8



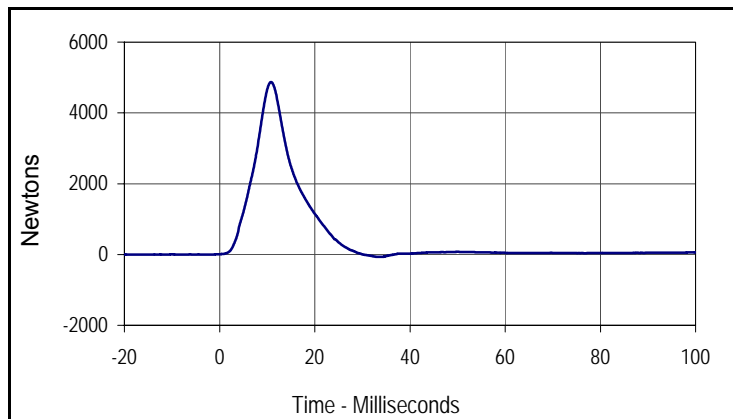
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
46.8	7.7	-0.4	-0.7

Test Program: SID IIs Pelvis Iliac Calibration  
 ATD Serial No.: 307

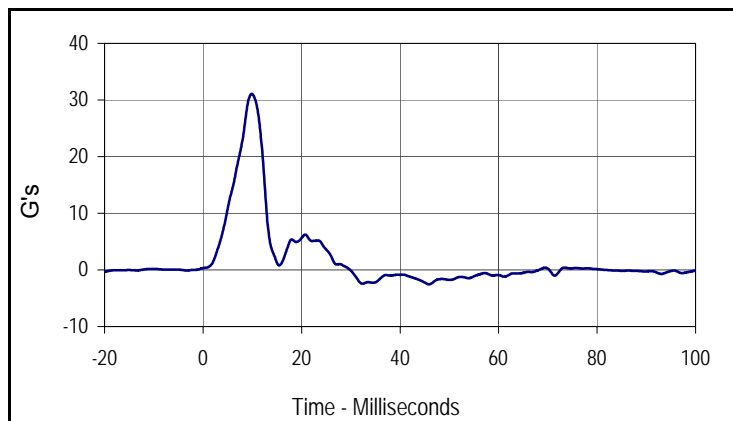
Test Date: 11/29/13  
 Test I.D.: 307PL060



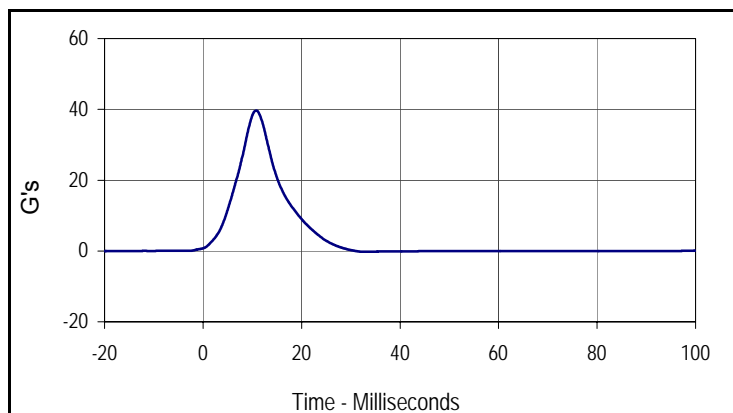
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	675	Pass
Temperature During Soak	Max	20.6 to 22.2	22.0	Pass
	Min		21.8	Pass
Humidity During Soak	Max	10.0 to 70.0	35.2	Pass
	Min		34.7	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.9	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.7	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.30	Pass
Peak Iliac Force	Newtons	4100 to 5100	4872.7	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	31.1	Pass
Peak Impactor Acceleration	G's	36 to 45	39.7	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Iliac Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4872.7	10.8	-69.5	34.1



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
31.1	9.9	-2.6	45.9



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
39.7	10.8	-0.2	32.6

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

**TABLE 1 – Dummy Instrumentation (ES-2re)**

			ES-2re S/N F037		
			Serial Number	Manufacturer	Calibration
Head Accelerometers	Primary	X	P58858	Endevco	10/9/2013
		Y	P58865	Endevco	10/9/2013
		Z	P58867	Endevco	10/9/2013
	Redundant	X	P58859	Endevco	10/9/2013
		Y	P58866	Endevco	10/9/2013
		Z	P58873	Endevco	10/9/2013
Thorax Rib Displacement Potentiometers	Upper	Y	209	FTSS	10/9/2013
	Middle	Y	210	FTSS	10/9/2013
	Lower	Y	207	FTSS	10/9/2013
Abdomen Load Cells	Forward	Y	1504	Denton	5/9/2013
	Middle	Y	1505	Denton	5/9/2013
	Rear	Y	1506	Denton	5/9/2013
Lower Spine Accelerometers (T12)		X	P16336	Endevco	10/9/2013
		Y	P58876	Endevco	10/9/2013
		Z	P58877	Endevco	10/9/2013
Pubic Symphysis Load Cell		Y	DG6834	Denton	5/9/2013

**TABLE 2 – Dummy Instrumentation (SID-IIs)**

			SID-IIs S/N 307			
			Serial Number	Manufacturer	Calibration	
Head Accelerometers	Primary	X	P58900	Endevco	8/27/2013	
		Y	P58902	Endevco	8/27/2013	
		Z	P58983	Endevco	8/27/2013	
	Redundant	X	P58901	Endevco	8/27/2013	
		Y	P58906	Endevco	8/27/2013	
		Z	P58989	Endevco	8/27/2013	
Displacement Potentiometers	Thoracic Rib	Upper	Y	1249	FTSS	8/28/2013
		Middle	Y	1265	FTSS	8/28/2013
		Lower	Y	1277	FTSS	8/28/2013
	Abdominal Rib	Upper	Y	1286	FTSS	8/28/2013
		Lower	Y	1290	FTSS	8/28/2013
Lower Spine Accelerometers (T12)		X	P59007	Endevco	8/28/2013	
		Y	P59015	Endevco	8/28/2013	
		Z	P58995	Endevco	8/28/2013	
Acetabulum Load Cell		Y	277	Denton	4/19/2013	
Iliac Wing Load Cell		Y	289	Denton	4/19/2013	
Pelvis Plug (Struck Side)			48899	FTSS	12/5/2013	
Pelvis Plug (Non-Struck Side)			63447	FTSS	1/28/2013	

**TABLE 3 – Vehicle Instrumentation**

Vehicle Instrumentation			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	Keva202x	ICSensor	7/2/2013
	Vehicle Center of Gravity	Y	Keva202y	ICSensor	7/2/2013
	Vehicle Center of Gravity	Z	Keva202z	ICSensor	7/1/2013
2	Right Sill at Front Seat	X	13735	Endevco	10/22/2013
	Right Sill at Front Seat	Y	13650	Endevco	9/24/2012
	Right Sill at Front Seat	Z	13701	Endevco	10/22/2013
3	Right Sill at Rear Seat	X	12489	Endevco	6/25/2013
	Right Sill at Rear Seat	Y	13322	Endevco	6/25/2013
	Right Sill at Rear Seat	Z	13501	Endevco	6/26/2013
4	Left Sill at Front Door	Y	13680	Endevco	6/25/2013
5	Left Sill at Rear Door	Y	13663	Endevco	7/1/2013
6	Left A-Post Lower	Y	13723	Endevco	6/18/2013
7	Left A-Post Middle	Y	13496	Endevco	11/15/2013
8	Left B-Post Lower	Y	13649	Endevco	11/4/2013
9	Left B-Post Middle	Y	13736	Endevco	10/22/2013
10	Front Seat Track	Y	13479	Endevco	6/19/2013
11	Rear Seat Structure	Y	N/A	N/A	N/A
12	Right Rear Occ. Compartment	Y	12493	Endevco	7/1/2013
13	Engine Block	X	13645	Endevco	6/24/2013
	Engine Block	Y	13704	Endevco	6/24/2013
14	Rear Floorpan Above Axle	X	13660	Endevco	6/18/2013
	Rear Floorpan Above Axle	Y	13381	Endevco	6/25/2013
	Rear Floorpan Above Axle	Z	13463	Endevco	6/18/2013

**TABLE 4 – MDB Instrumentation**

		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	13682	Endevco	6/24/13
MDB Center of Gravity	Y	13706	Endevco	6/24/13
MDB Center of Gravity	Z	13715	Endevco	6/24/13
Left Frame at Rear Axle Centerline	X	13705	Endevco	6/24/13
Left Frame at Rear Axle Centerline	Y	13711	Endevco	6/24/13