

REPORT NUMBER: SINCAP-KAR-13-047

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

**HONDA OF CANADA MFG.
2013 HONDA CIVIC LX 2-DOOR COUPE**

NHTSA No: MD5308

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



MARCH 13, 2013

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
MAIL CODE: NVS-111
1200 NEW JERSEY AVE, SE, ROOM W43-410
WASHINGTON, D.C. 20590**

TECHNICAL REPORT DOCUMENTATION PAGE

1. Report No. SINCAP-KAR-13-047	2. Government Accession No.	3. Recipient's Catalog No.
4. Title and Subtitle Final Report of New Car Assessment Program Side Impact MDB Testing of a 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308	5. Report Date March 13, 2013	
	6. Performing Organization Code KAR	
7. Authors Mr. Kelsey A. Chiu, Engineering Department Supervisor, KARCO Mr. Frank Richardson, Program Manager, KARCO	8. Performing Organization Report No. TR-P32003-17-NC	
	10. Work Unit No.	
9. Performing Organization Name and Address KARCO Engineering, LLC. 9270 Holly Rd. Adelanto, CA 92301	11. Contract or Grant No. DTNH22-09-D-00122	
	13. Type of Report and Period Covered Final Test Report, Feb. 28 - March 13, 2013	
12. Sponsoring Agency Name and Address U. S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards (NVS-111) 1200 New Jersey Ave., SE, Room W43-410 Washington, D.C. 20590	14. Sponsoring Agency Code NVS-111	
	15. Supplementary Notes	

16. Abstract

A 55/28 km/h 90 deg. Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2013 Honda Civic LX 2-door coupe in accordance with the specifications of the Office of Crashworthiness 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 February 28, 2013.

The impact velocity of the Moving Deformable Barrier was 62.44 km/h and the outside ambient temperature at the struck (driver's) side of the vehicle was 16.3 deg. C. The target vehicle's maximum post-test static crush was 138 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 ₃₆)		1000	251.5
Maximum Thorax Rib Deflection	mm	44	23
Total Abdominal Force	N	2500	1105
Pubic Symphysis Force	N	6000	2390

Measurement Description	Passenger ATD (SID-IIs)		
	Units	IARV	Result
Head Injury Criteria (HIC ₃₆)		1000	575.1
Resultant Lower Spine Acceleration	g	82	77
Total Pelvic Force (Sum of Acetubular and Iliac Forces)	N	5525	3381
Maximum Thoracic Rib Deflection	mm	38*	26
Maximum Abdominal Rib Deflection	mm	45*	26

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

* Proposed IARV

17. Key Words New Car Assessment Program (NCAP) Side Impact Moving Deformable Barrier (MDB) ES-2re SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division, NPO-411 1200 New Jersey Ave., SE Washington, DC 20590 e-mail: tis@nhtsa.dot.gov FAX 202-493-2833	
19. Security Classification of this report UNCLASSIFIED	20. Security Classification of this page UNCLASSIFIED	21. No. of Pages 155	22. Price

TABLE OF CONTENTS

<u>Section</u>		<u>Page</u>
1	Test Purpose and Procedure	1
2	Summary of Test Results	2
3	Occupant and Vehicle Information	4
<u>Data Sheet</u>		<u>Page</u>
1	General Test and Vehicle Parameter Data	5
2	Seat, Seat Belt, Steering Wheel Adjustment and Fuel System Data	9
3	Dummy Longitudinal Clearance Dimensions	13
4	Dummy Lateral Clearance Dimensions	14
5	Camera and Instrumentation Data	15
6	Test Vehicle Accelerometer Locations	16
7	MDB Accelerometer Locations	17
8	Post-Test Observations	18
9	MDB Summary of Results	20
10	Test Vehicle Profile Measurements	21
11	Test Vehicle Exterior Crush Measurements	22
12	MDB Exterior Static Crush Measurements	25
13	FMVSS No. 301 Static Rollover Results	26
14	Dummy/Vehicle Temperature and Humidity Stabilization	27
<u>Appendix</u>		<u>Page</u>
A	Photographs	A
B	Vehicle and Dummy Response Data Plots	B
C	Dummy Configuration and Performance Verification Data	C
D	Test Equipment and Instrumentation Calibration Data	D

SECTION 1
TEST PURPOSE AND PROCEDURE

This moving deformable barrier side impact test is part of the MY 2013 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract number DTNH22-09-D-00122. The purpose of this test is to generate comparative side impact performance in a 2013 Honda Civic LX 2-door coupe. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated September 2012.

SECTION 2

SUMMARY OF TEST RESULTS

A 2013 Honda Civic LX 2-door coupe 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 62.44 km/h (38.80 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 February 28, 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 positions according to instructions specified in the OCWS Side Impact Laboratory Test Procedure, dated September 2012. 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 ₃₆)		1000	251.5
Maximum Thorax Rib Deflection	mm	44	23
Combined Abdominal Force	N	2500	1105
Pubic Symphysis Force	N	6000	2390

Measurement Description	Units	Passenger ATD (SID-IIs)	
		Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	575.1
Lower Spine (T12) Resultant Acceleration	g	82	77
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3381
Maximum Thoracic Rib Deflection	mm	38*	26
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)	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes	Yes	No	
Other				

GENERAL COMMENTS

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

SECTION 3

OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308

Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13

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 ²	kPa	6.895
Temperature	General Use	°F	°C	$=(T_f - 32)/1.8$
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf-ft	N•m	1.355

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308
 Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	MD5308
Model Year	2013
Make	Honda
Model	Civic LX
Body Style	2-Door Coupe
VIN	2HGFG3B59DH500306
Body Color	Red
Odometer Reading (km / mi)	101 / 63
Engine Displacement (L)	1.8
Type / No. of Cylinders	Inline 4
Engine Placement	Transverse
Transmission Type	Automatic
Transmission Speeds	5
Overdrive	Yes
Final Drive	Front
Roof Rack	No
Sunroof / T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
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	Yes
Driver Torso/Pelvis Airbag	No
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? Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Honda of Canada Mfg.
Date of Manufacture	Dec-12
Vehicle Type	Passenger Car

GVWR (kg)	1680
GAWR Front (kg)	905
GAWR Rear (kg)	790

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Designated Seating Capacity	2	3		5
Capacity Weight (VCW) (kg)				385.0
DSC x 68.04 (kg)				340.2
Cargo Weight (RCLW) (kg)				44.8

A
B
A-B

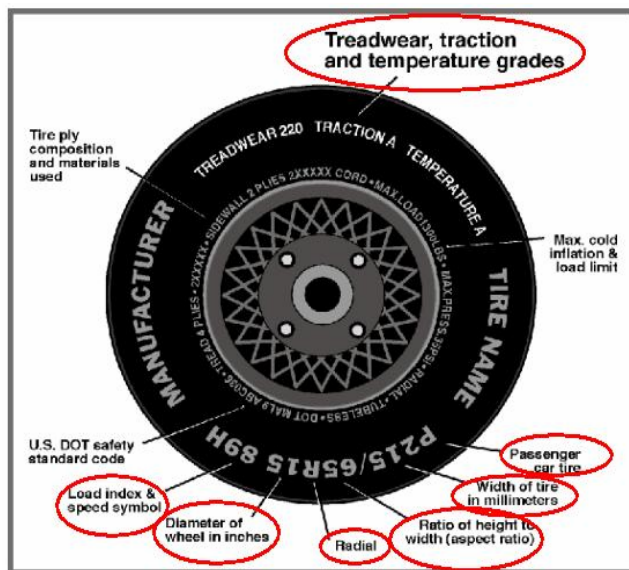
VEHICLE SEAT TYPE

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

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308
 Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13



VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	300	300
Cold Pressure (kPa)	210	210
Recommended Tire Size	P195/65R15	P195/65R15
Tire Size on Vehicle	P195/65R15	P195/65R15
Tire Manufacturer	Continental	Continental
Tire Model	ContiPro Contact	ContiPro Contact
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	89H	89H
Tire Material	Polyester, Polyamide, Steel	Polyester, Polyamide, Steel
DOT Safety Code Left	P5C6 3W5 4612	P5C6 3W5 4612
DOT Safety Code Right	P5C6 3W5 4612	P5C6 3W5 4612

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308
 Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	225	225	235	220
Tire Placard	kPa	210	210	210	210
Owner's Manual	kPa	210	210	210	210
As Tested	kPa	210	210	210	210

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	391.5	239.0		439.5	314.5		435.0	318.5	
Right	kg	387.5	244.0		389.0	281.0		388.0	291.0	
Ratio	%	61.7%	38.3%	100.0%	58.2%	41.8%	100.0%	57.5%	42.5%	100.0%
Total	kg	779.0	483.0	1262.0	828.5	595.5	1424.0	823.0	609.5	1432.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1262.0	A
Actual Weight of 2 P572 ATDs Used	kg	125.0	B
Rated Cargo/Luggage Wt (RCLW)	kg	44.8	C
Calculated Vehicle Target Wt (TVTW)	kg	1431.8	A+B+C

Does the measured As Tested Vehicle Weight lie within the required weight range (i.e. Calculated Test Vehicle Target Weight -4.5 kg to -9.0 kg)? Yes No

TEST VEHICLE ATTITUDE AND CG

Measurement Description	Units	Fully Loaded	As Tested	Meets Requirement***
LF	mm	666	665	Yes
RF	mm	681	674	Yes
RR	mm	657	654	Yes
LR	mm	665	662	Yes
Vehicle CG (Aft of Front Axle)	mm	1116	1097	
Vehicle CG (Left (+)/Right (-) from Longitudinal Centerline)	mm	39	44	

***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: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308
Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Outboard Mirror	1.0
Non-Struck Side Windows	4.5
Non-Struck Side Door Panels	3.5
Spare Tire and Tools	13.0
Ballast / Equipment Added	84.0

DATA SHEET NO. 2

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

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308

Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13

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	1.2	0.0	0.6
Front Passenger Seat	Fixed	Fixed	Fixed
Front Center Seat			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle	As Tested SCRP Height	SCR Height Position	SCR Height (mm)		
				Rearmost	Mid Fore/Aft	Forwardmost
Driver Seat	0.6	504	Max	491	504	519
			Mid	491	504	519
			Min	491	504	519
Front Passenger Seat	Fixed	490	Max	479	490	500
			Mid	479	490	500
			Min	479	490	500
Front Center Seat			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed

DATA SHEET NO. 2 ... (CONTINUED)

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

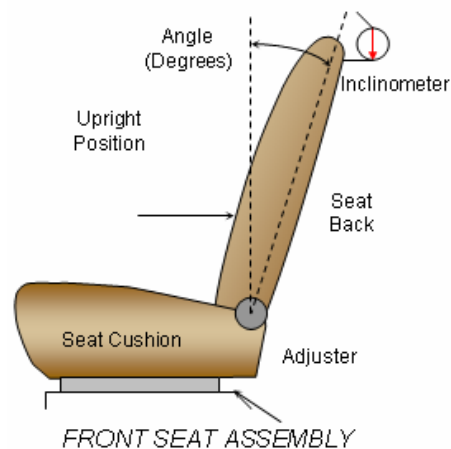
Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308
 Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13

SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position From Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	240	25	120	12
Front Passenger Seat	240	25	120	12
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 headrest post.



SEAT BACK POSITION

Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degree	Detent*
Driver Seat w/Seated Dummy	66.2	33	9.0	4
Front Passenger Seat	60.1	31	9.0	4
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: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308
 Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13

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	Fixed	Fixed
Rear Seat	Fixed	Fixed

HEAD RESTRAINT ADJUSTMENT

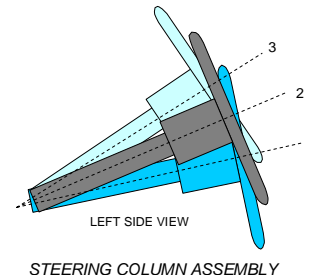
The driver's head restraint is adjusted to the highest and most full forward in-use position. The struck-side rear passenger's head restraint is adjusted to the lowest and most full forward in-use position.

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

STEERING COLUMN ADJUSTMENT

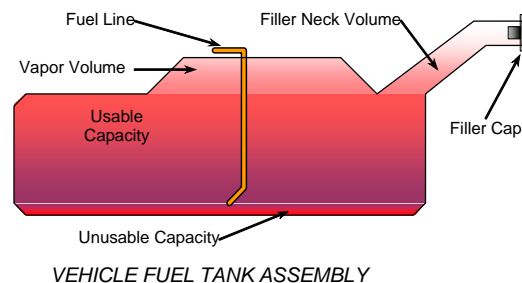
Steering wheel and column adjustments are made so that the steering wheel hub is at the center of the geometric locus it describes when it moves through its full range of motion.

	Degrees	Fore-Aft Position (mm)
Lowermost - Position 1	20.1	163
Geometric Center - Position 2	22.6	184
Uppermost - Position 3	25.1	205
Telescoping Steering Wheel Travel		42
Test Position	22.6	184



FUEL PUMP

The vehicle is equipped with an electric fuel pump. The fuel pump is activated when the ignition is turned from the LOCK to the ON position. The pump will be filled up for two seconds and then pressure is maintained.



DATA SHEET NO. 2 ... (CONTINUED)

SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308
Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13

FUEL TANK CAPACITY

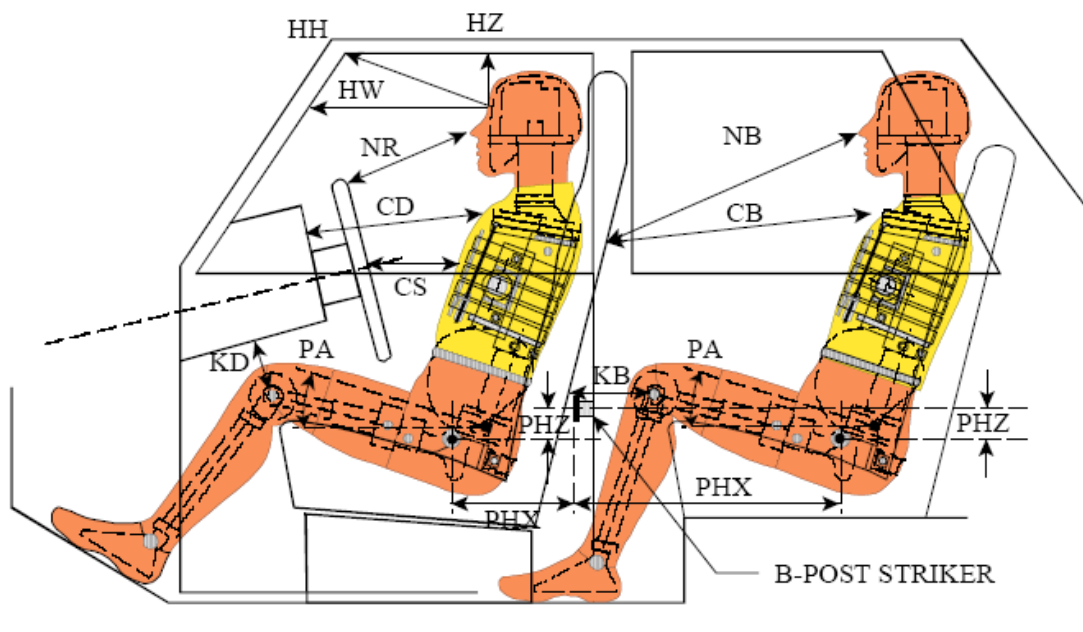
Description	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	49.96
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of "Standard Tank" (see Owner's Manual)	
Usable Capacity of "Optional Tank" (see Owner's Manual)	
93% of Usable Capacity	46.46
Actual amount of Solvent Used in Test	46.46
1/3 of Usable Capacity	16.65

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

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308
 Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13



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

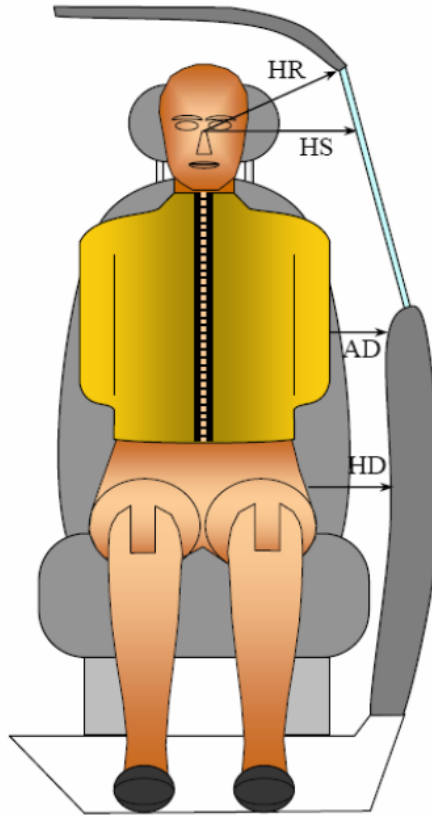
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Pass. Code	Description	Driver		Passenger	
			Length (mm)	Angle (°)	Length (mm)	Angle (°)
HH		Head to Header	361			
HW		Head to Windshield	609			
HZ	HZ	Head to Roof	128		181	
NR	NB	Nose to Rim/Seat Back	437		497	
CD	CB	Chest to Dash/Seat Back	567		505	
CS		Chest to Steering Wheel	298			
KD(L)/KDA(L)°	KB(L)/KBA(L)°	Left Knee to Dash/Seat Back	125	28.5	169	25.6
KD(R)/KDA(R)°	KB(R)/KBA(R)°	Right Knee to Dash/Seat Back	130	26.0	229	23.5
PAX°	PAX°	Pelvic Tilt Angle X		16.1		20.8
	PAY°	Pelvic Tilt Angle Y				0.5
PHX	PHX	Hip Point to Striker (x-axis)	444		398	
PHZ	PHZ	Hip Point to Striker (z-axis)	232		266	

DATA SHEET NO. 4

DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308
Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13



FRONT VIEW OF DUMMY

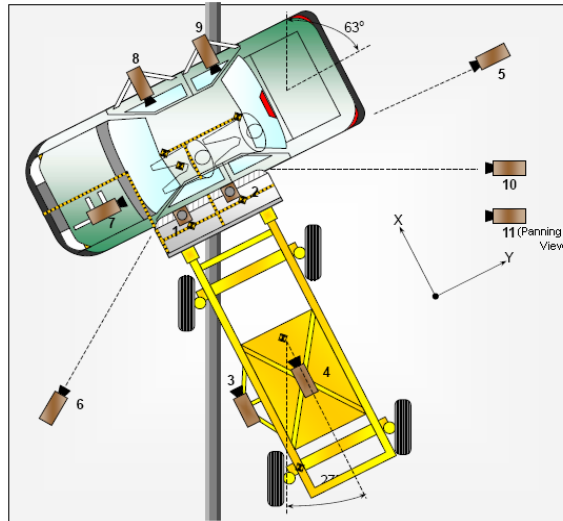
DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver	Passenger
HR	Head to Side Header	mm	190	257
HS	Head to Side Window	mm	335	401
AD	Arm to Door	mm	86	175
HD	H-Point to Door	mm	149	183

DATA SHEET NO. 5

CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308
 Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13



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)	622	-617	772	35	1000
8	Driver Side (On-Board)	1649	780	415	14	1000
9	Passenger Side (On-Board)	1668	1749	535	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	23
MDB Accelerometers	5
Total	60

DATA SHEET NO. 6

TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308
 Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

Loc. No.	Sensor Description	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	1850	0	-207
2	Right Sill at Front Seat	2359	743	-371
3	Right Sill at Rear Seat	1422	806	-390
4	Left Sill at Front Door	2328	-692	-203
5	Left Sill at Rear Door	1625	-746	-203
6	A-Pillar Lower	3002	-780	-526
7	A-Pillar Middle	3005	-782	-832
8	B-Pillar Lower			
9	B-Pillar Middle			
10	Front Seat Track	2250	-587	-305
11	Rear Seat Structure			
12	Right Rear Occupant Compartment	1946	415	-200
13	Engine Block	3650	50	-822
14	Rear Floorpan Above Axle	1093	109	-517

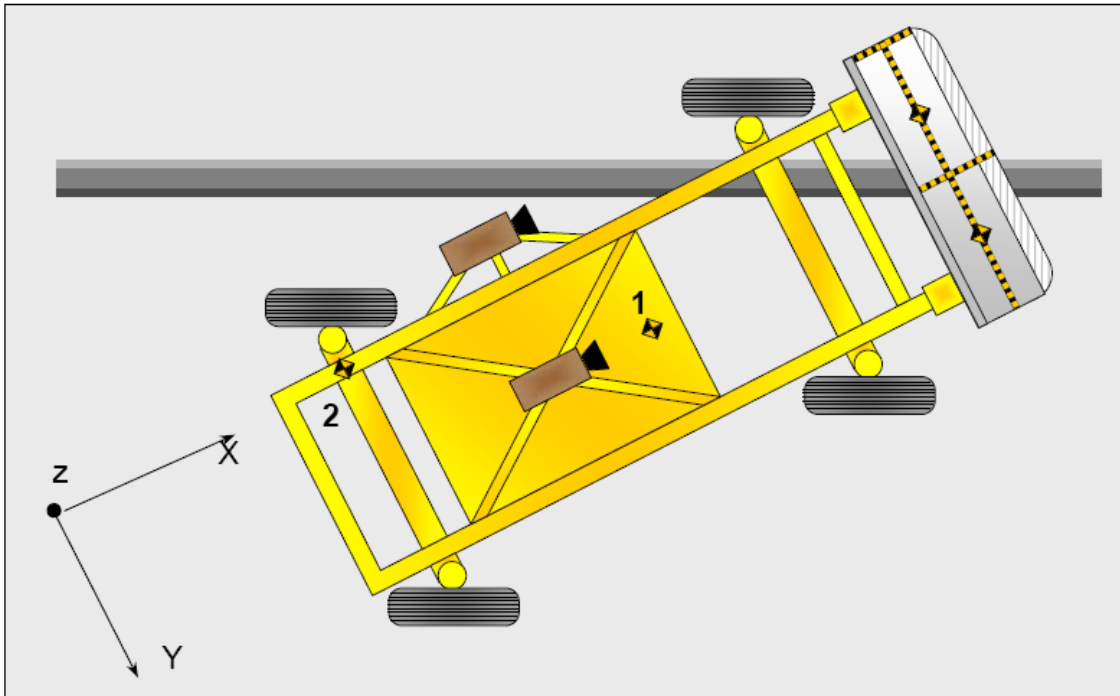
Reference: X – Rear surface of vehicle (+ forward)
 Y – Vehicle centerline (+ to right)
 Z – Ground plane (+ down)

DATA SHEET NO. 7

MDB ACCELEROMETER LOCATIONS

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308

Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13



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: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308
 Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Front Seat Dummy (ES-2re)	Rear Seat Dummy (SID-IIs)
Face	Side Header, Curtain Airbag	Curtain Airbag
Top of Head	Side Header	Side Header, Center Seat Head Restraint
Left Side of Head	Side Header, Curtain Airbag	Curtain Airbag
Back of Head	Head Restraint	Curtain Airbag, Head Restraint, Center Seat Back
Left Shoulder	Torso Airbag, Door Panel	Door Panel
Upper Torso	Torso Airbag, Seat	None
Lower Torso	Torso Airbag, Seat	Door Panel
Left Hip	Torso Airbag, Door Panel	Seat, Door Panel
Left Knee	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		Yes		Yes
Total Separation from Vehicle at Hinges or Latches	No		No		No
Latch or Hinge System Pulled Out of Their Anchorages	No		No		No
Disengaged from Latched Position	No		No		No
Latch Separated from Striker	No		No		No
Jammed Shut	Yes		No		No
If Door Opened at Striker, Record Width of Opening at Striker (mm)					

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	None
Other Notable Effects	None

DATA SHEET NO. 8 ... (CONTINUED)

POST-TEST OBSERVATIONS

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308
 Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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)	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes	Yes	No	
Other				

IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vehicle Wheel Base	mm		2623
Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)	mm		373
Actual Impact Point (Aft of Front Axle)	mm		380
Horizontal Offset (+ forward / - rearward)	mm	± 50 of Intended Impact Point	-7
Vertical Offset (+ down / - up)	mm	± 20 of Intended Impact Point	11

DATA SHEET NO. 9
MDB SUMMARY OF RESULTS

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308
 Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13

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	402	298	700
Right	kg	377	292	669
Ratio	%	56.9%	43.1%	100.0%
Totals	kg	779	590	1368

SPEED AND IMPACT DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	62.44
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.43
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	89.6
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	62.5
MDB Crabbed Angle to MDB Forward Line of Motion	degrees	26.0 to 28.0	27.1

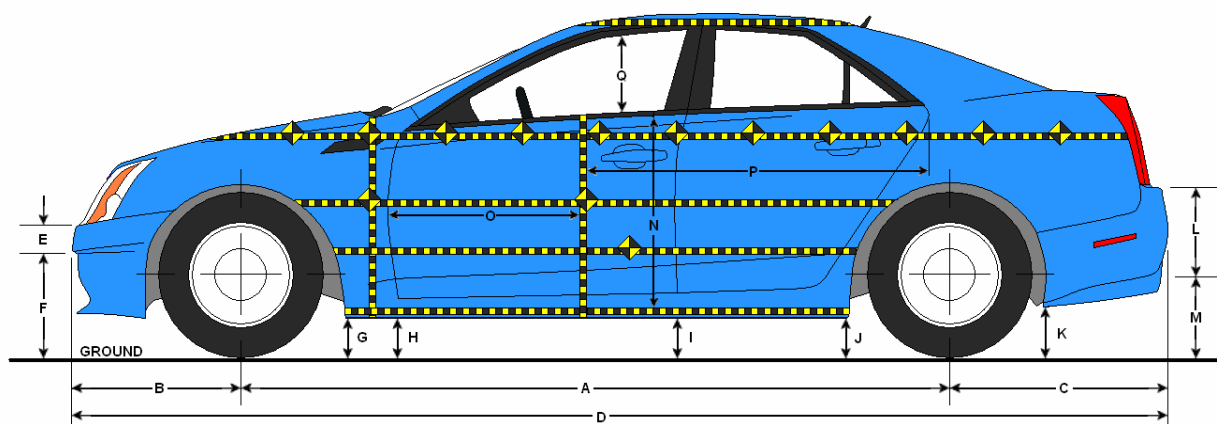
MAXIMUM STATIC CRUSH OF HONEYCOMB FACE

Vertical Location			From Centerline		Max. Crush (mm)
Row	Description	Height (mm)	Distance (mm)	Direction	
A	Center of Bumper	432	600	Right	259
B	Top of Bumper	533	500	Right	149
C	Mid Level	686	600	Right	134
D	Top of Stack	813	800	Left	137

DATA SHEET NO. 10

TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308
 Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13



LEFT SIDE VIEW

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

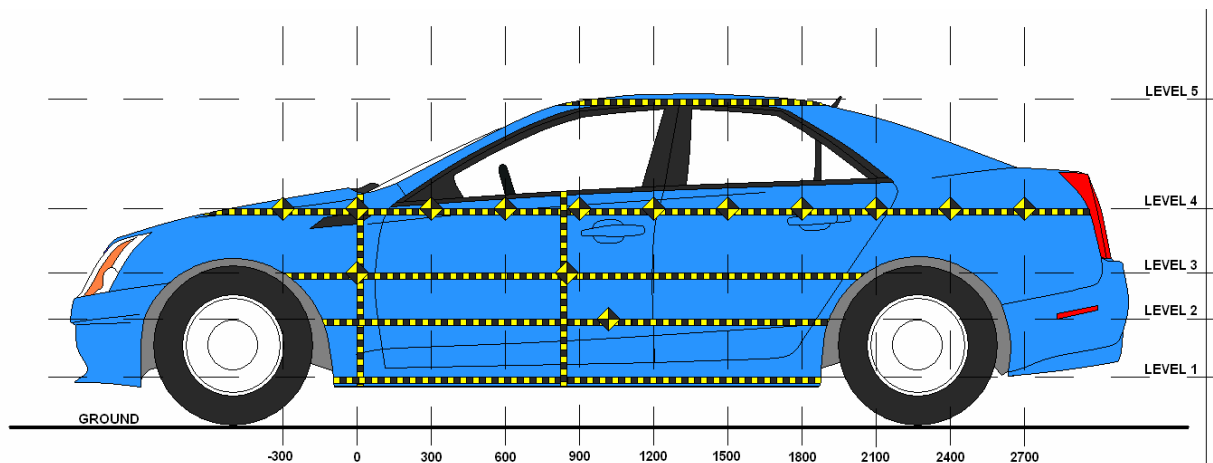
Code	Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2623	2620	-3
B	Front Axle to FSOV	887	890	3
C	Rear Axle to RSOV	939	938	-1
D	Total Length at Centerline	4449	4448	-1
E	Front Bumper Thickness	258	258	0
F	Front Bumper Bottom to Ground	276	267	-9
G	Sill Height at Front Wheel Well	199	191	-8
H	Sill Height at Front Door Leading Edge	197	189	-8
I	Sill Height at B-Pillar	199	221	22
J1	Sill Height at Rear Wheel Well	197	228	31
J2	Pinch Weld Height at Rear Wheel Well	165	184	19
K	Sill Height Aft of Rear Wheel Well	260	279	19
L	Rear Bumper Thickness	285	286	1
M	Rear Bumper Bottom to Ground	323	341	18
N	Sill Height to Bottom of Front Window Sill	645	597	-48
O	Front Door Leading Edge to Impact CL	757	717	-40
P	Rear Door Trailing Edge to Impact CL	1049	1072	23
Q	Front Window Opening	348	385	37
R	Right Side Length	3045	3046	1
S	Left Side Length	3044	3030	-14
T	Vehicle Width at B-Pillar	1754	1708	-46

All measurements in mm with tolerance of ± 3 mm

DATA SHEET NO. 11

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308
 Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13



LEFT SIDE VIEW

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	232	38	1500
2	Occupant H-Point	497	110	1800
3	Mid-Door	618	138	1800
4	Window Sill	867	94	450
5	Window Top	1319	14	1200

DATA SHEET NO. 11 ... (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308

Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

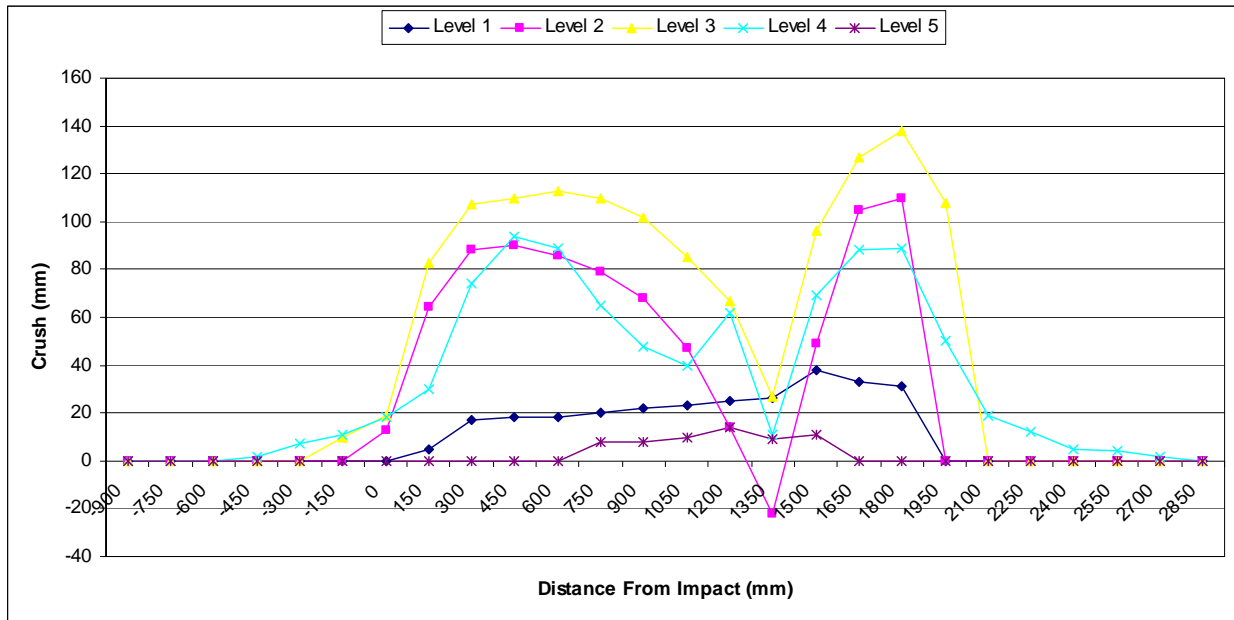
	Pre-Test (mm)					Post-Test (mm)					Difference (mm)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600															
-450				744					746					2	
-300				712					719					7	
-150			618	701				628	712				10	11	
0		622	625	693			635	644	711			13	19	18	
150	656	630	628	684		661	694	711	714		5	64	83	30	
300	659	631	628	665		676	719	735	739		17	88	107	74	
450	657	632	628	675		675	722	738	769		18	90	110	94	
600	655	631	628	671		673	717	741	760		18	86	113	89	
750	653	631	628	671	892	673	710	738	736	900	20	79	110	65	8
900	651	632	628	671	884	673	700	730	719	892	22	68	102	48	8
1050	650	632	628	670	886	673	679	713	710	896	23	47	85	40	10
1200	648	633	628	664	888	673	647	695	726	902	25	14	67	62	14
1350	647	633	628	660	901	673	611	655	671	910	26	-22	27	11	9
1500	648	634	627	656	918	686	683	723	725	929	38	49	96	69	11
1650	648	633	630	656		681	738	757	744		33	105	127	88	
1800	648	628	630	656		679	738	768	745		31	110	138	89	
1950			623	658				731	708				108	50	
2100				661					680					19	
2250				666					678					12	
2400				675					680					5	
2550				690					694					4	
2700				707					709					2	
2850															

DATA SHEET NO. 11 ... (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308

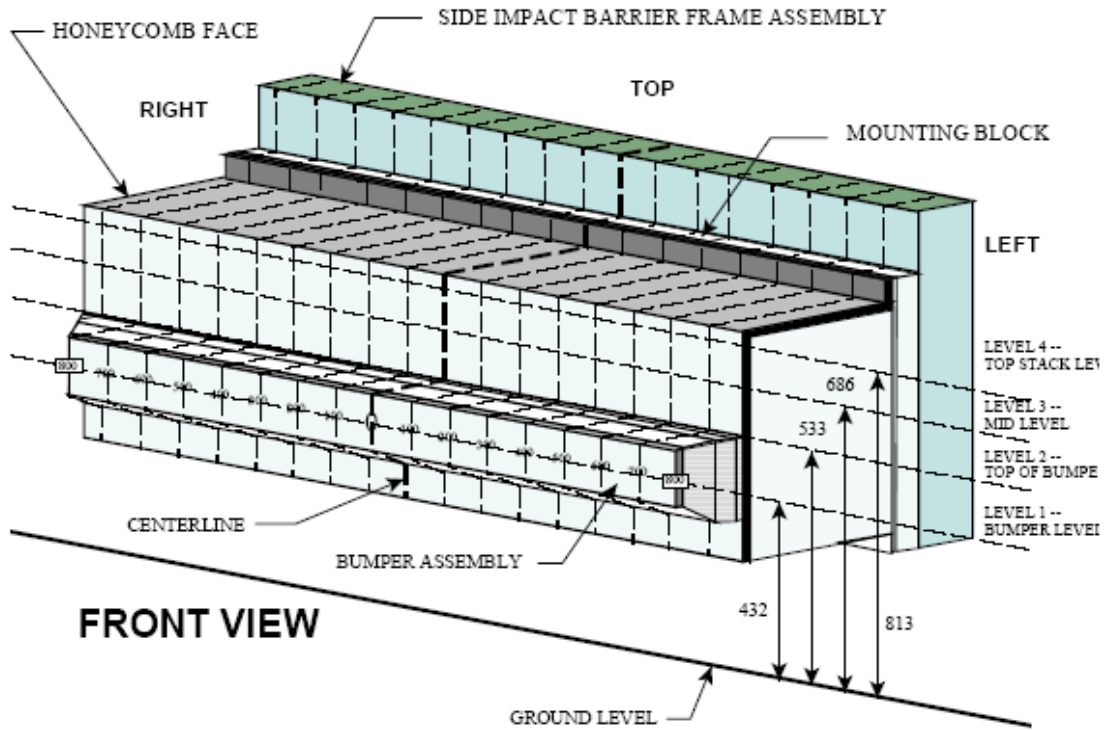
Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13



DATA SHEET NO. 12

MDB EXTERIOR STATIC CRUSH MEASUREMENTS

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308
 Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13



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	215	229	259	250	225	196	174	160	150	143	140	139	139	144	154	166	195
2	99	116	148	149	137	106	88	75	67	64	63	63	62	66	74	88	96
3	85	93	134	119	87	44	26	21	21	18	16	19	22	27	37	54	114
4	94	85	110	120	104	50	21	5	0	4	5	9	14	34	56	85	137

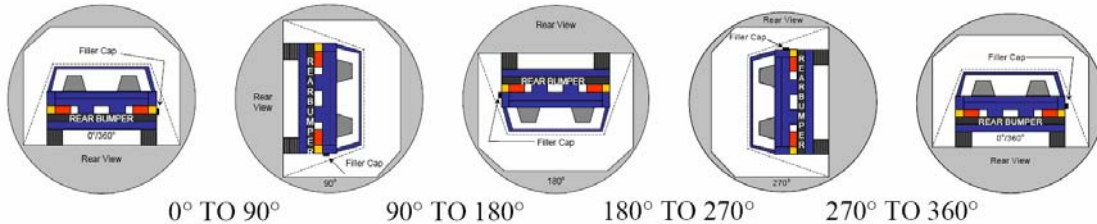
All dimensions in millimeters.

DATA SHEET NO. 13

FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308
 Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13
 Temperature at Time of Impact: 16.3° C Test Time: 12:00 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: No spillage occurred



SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	82	300	382
90° To 180°	83	300	383
180° To 270°	76	300	376
270° To 360°	84	300	384

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

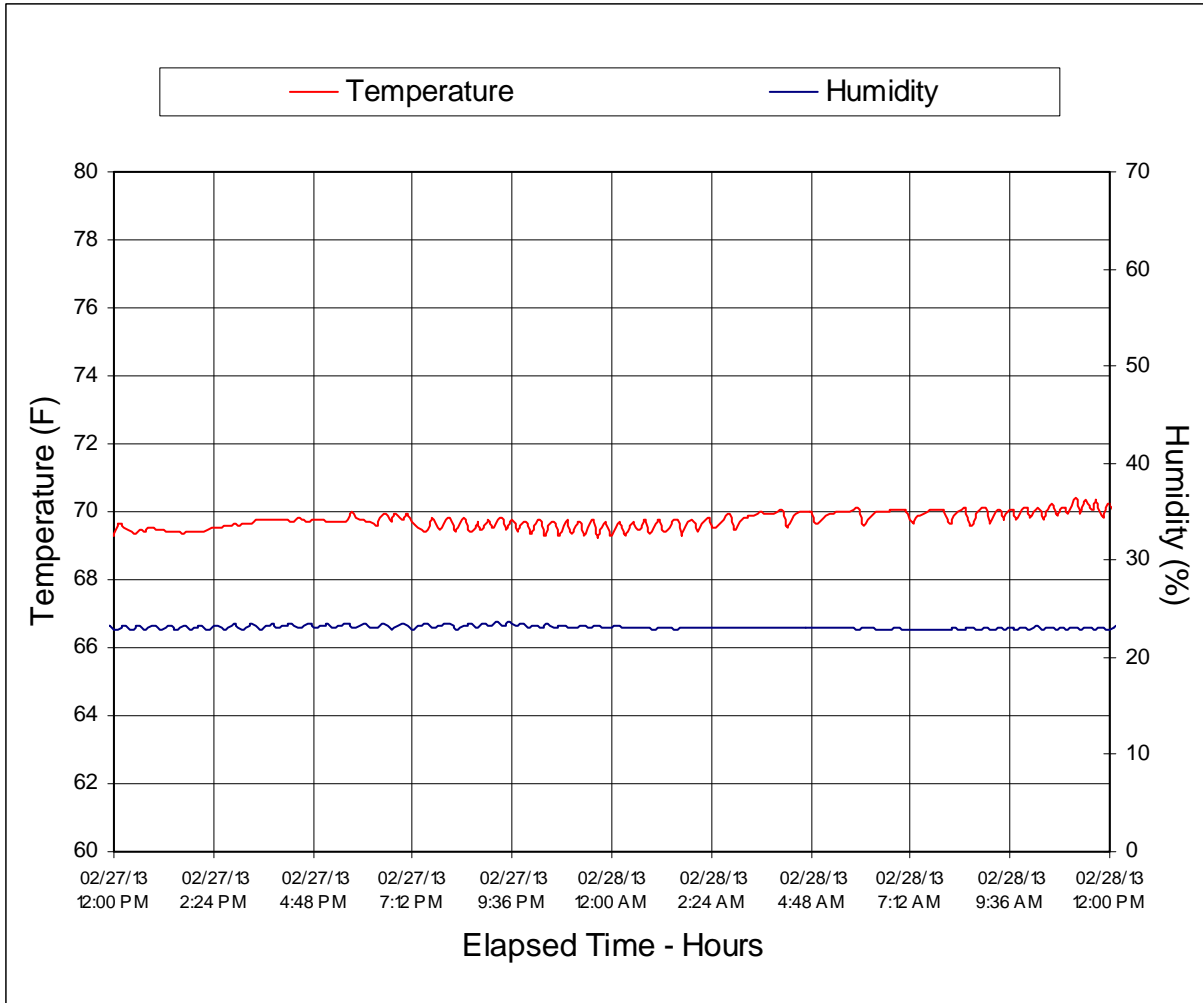
Test Phase	Spillage Location
0° To 90°	No Spillage Occurred
90° To 180°	No Spillage Occurred
180° To 270°	No Spillage Occurred
270° To 360°	No Spillage Occurred

DATA SHEET NO. 14

DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe NHTSA No. MD5308

Test Program: NCAP MDB Side Impact Test Test Date: 2/28/13



**APPENDIX A
PHOTOGRAPHS**

TABLE OF PHOTOGRAPHS

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

TABLE OF PHOTOGRAPHS ... (CONTINUED)

Figure		Page
36	Pre-Test Left Side View of Steering Wheel	A-18
37	View of Disengaged Parking Brake	A-19
38	Pre-Test View of Parking Brake	A-19
39	Pre-Test Close-Up Left Side View of Driver Seat Track	A-20
40	Pre-Test Close-Up Left Side View of Driver Seat Back	A-20
41	Pre-Test Close-Up View of Driver Seat Back or Head Restraint	A-21
42	Pre-Test Driver Dummy and Door Clearance View	A-21
43	Post-Test Driver Dummy and Door Clearance View	A-22
44	Pre-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment	A-22
45	Post-Test Right Side View of Driver Dummy and Front Seat Occupant Compartment	A-23
46	Pre-Test Driver Inner Door Panel View	A-23
47	Post-Test Driver Inner Door Panel View	A-24
48	Post-Test Driver Dummy Close-Up Head Contact with Vehicle Interior View	A-24
49	Post-Test Driver Dummy Close-Up Head Contact with Side Airbag View	A-25
50	Post-Test Driver Dummy Close-Up Torso Contact with Vehicle Interior View	A-25
51	Post-Test Driver Dummy Close-Up Torso Contact with Side Airbag View	A-26
52	Post-Test Driver Dummy Close-Up Pelvis Contact with Vehicle Interior View	A-26
53	Post-Test Driver Dummy Close-Up Pelvis Contact with Side Airbag View	A-27
54	Post-Test Driver Dummy Close-Up Knee Contact View	A-27
55	Pre-Test Left Side View of Rear Passenger Dummy Showing Belt and Chalking	A-28
56	Pre-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View	A-28
57	Post-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View	A-29
58	Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning	A-29
59	Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head Restraint	A-30
60	Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning	A-30
61	Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan	A-31
62	Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket	A-31
63	Pre-Test View of Rear Passenger Dummy's Head Showing Dummy's Head is Level	A-32
64	Pre-Test Placement of Rear Passenger Dummy's Feet	A-32
65	Pre-Test View of Belt Anchorage for Rear Passenger Dummy	A-33
66	Pre-Test Close-Up Left Side View of Rear Passenger Seat Track	A-33
67	Pre-Test Close-Up Left Side View of Rear Passenger Seat Back	A-34
68	Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint	A-34
69	Pre-Test Rear Passenger Dummy and Door Clearance View	A-35
70	Post-Test Rear Passenger Dummy and Door Clearance View	A-35

TABLE OF PHOTOGRAPHS ... (CONTINUED)

Figure		Page
71	Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment	A-36
72	Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment	A-36
73	Pre-Test Rear Passenger Inner Door Panel View	A-37
74	Post-Test Rear Passenger Inner Door Panel	A-37
75	Post-Test Rear Passenger Dummy Close-Up Head Contact with Vehicle Interior View	A-38
76	Post-Test Rear Passenger Dummy Close-Up Head Contact with Side Airbag View	A-38
77	Post-Test Rear Passenger Dummy Close-Up Torso Contact with Vehicle Interior View	A-39
78	Post-Test Rear Passenger Dummy Close-Up Torso Contact with Side Airbag View	A-39
79	Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Vehicle Interior View	A-40
80	Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Side Airbag View	A-40
81	Post-Test Rear Passenger Dummy Close-Up Knee Contact View	A-41
82	Pre-Test View of Fuel Filler Cap or Fuel Filler Neck	A-41
83	Post-Test View of Fuel Filler Cap or Fuel Filler Neck	A-42
84	Pre-Test Front View of MDB Impactor Face	A-42
85	Post-Test Front View of MDB Impactor Face	A-43
86	Pre-Test Top View of MDB Impactor Face	A-43
87	Post-Test Top View of MDB Impactor Face	A-44
88	Pre-Test Left Side View of MDB Impactor Face	A-44
89	Post-Test Left Side View of MDB Impactor Face	A-45
90	Pre-Test Right Side View of MDB Impactor Face	A-45
91	Post-Test Right Side View of MDB Impactor Face	A-46
92	Close-Up View of Vehicle's Certification Label	A-46
93	Close-Up View of Vehicle's Tire Information Placard or Label	A-47
94	Pre-Test Ballast View	A-47
95	Post-Test Primary and Redundant Speed Trap Read-Out	A-48
96	FMVSS No. 301 Rollover 0 Degrees	A-48
97	FMVSS No. 301 Rollover 90 Degrees	A-49
98	FMVSS No. 301 Rollover 180 Degrees	A-49
99	FMVSS No. 301 Rollover 270 Degrees	A-50
100	FMVSS No. 301 Rollover 360 Degrees	A-50
101	Impact Event	A-51
102	Monroney Label	A-51
103	Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-52
104	Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-52



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

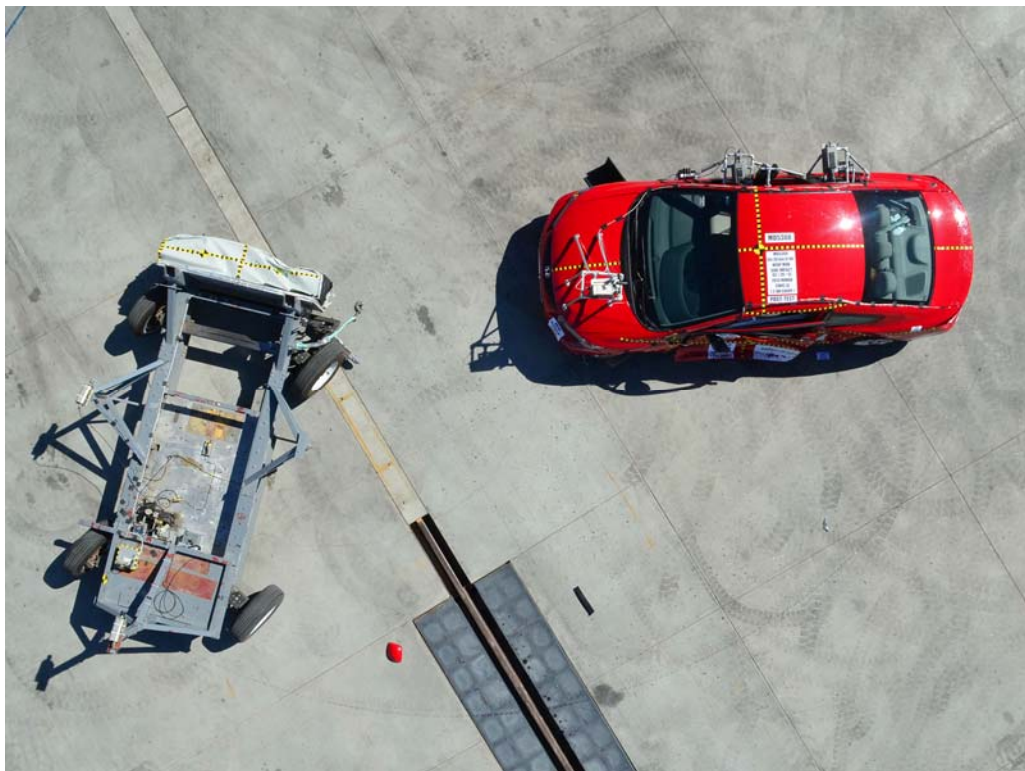


FIGURE 16. Post-Test Overhead View of Test Area



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

Photograph Not Applicable

**Vehicle Not Equipped With
Rear Passenger Door**

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

Photograph Not Applicable

**Vehicle Not Equipped With
Rear Passenger Door**

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

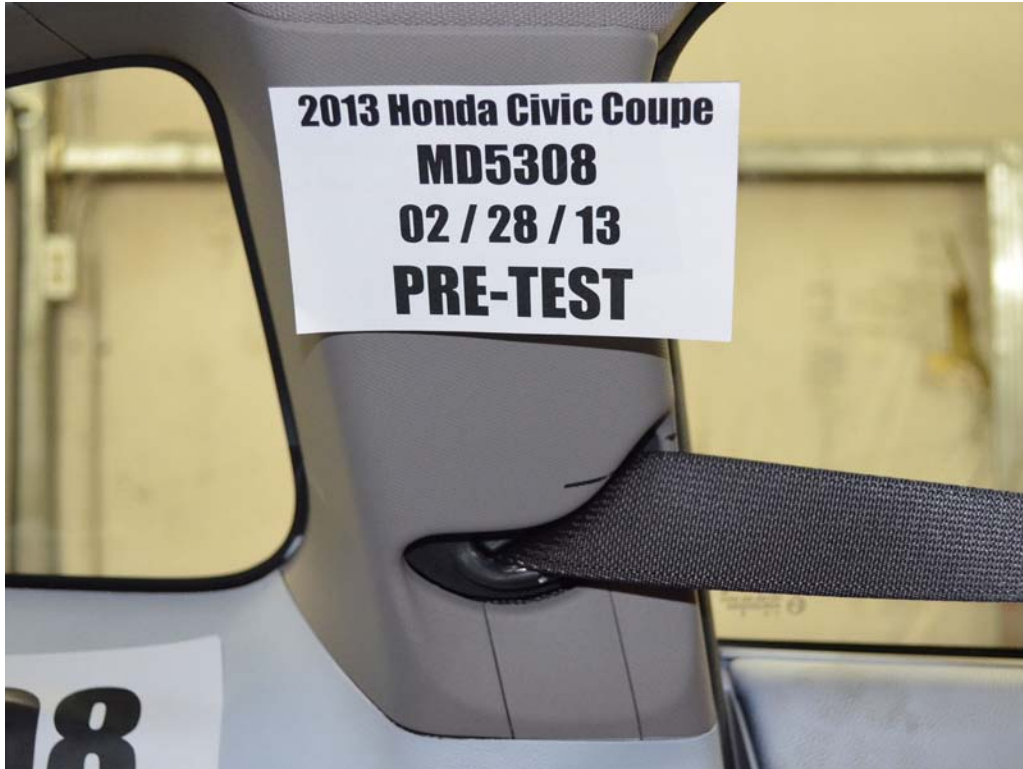


FIGURE 35. Pre-Test View of Belt Anchorage for Driver Dummy



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

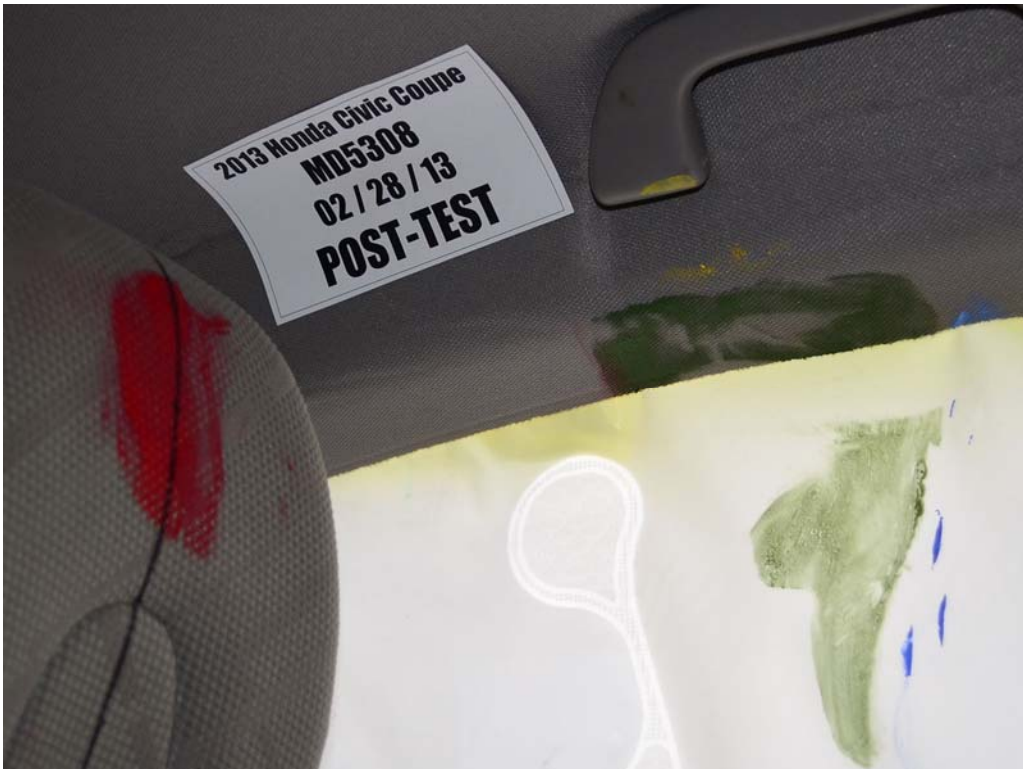


FIGURE 48. Post-Test Driver Dummy Close-Up Head Contact with Vehicle Interior View



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 with Vehicle Interior View



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

Photograph Not Applicable

**No Driver Dummy Knee
Contact with Vehicle
Interior**

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

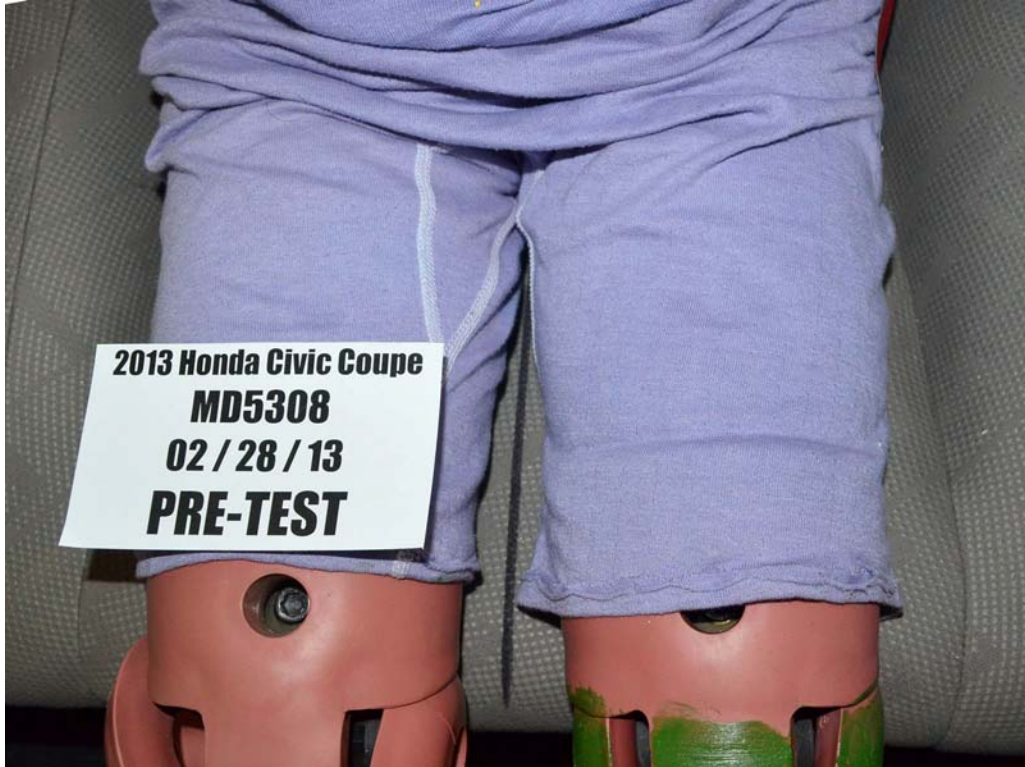


FIGURE 61. Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan



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

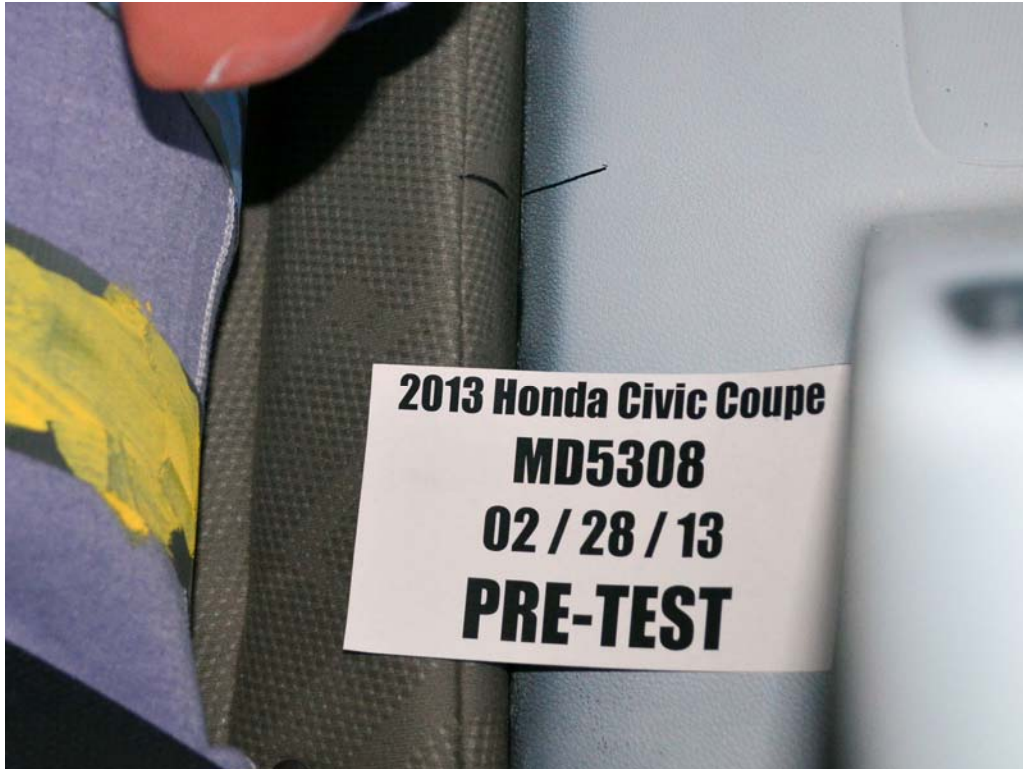


FIGURE 67. Pre-Test Close-Up Left Side View of Rear Passenger Seat Back

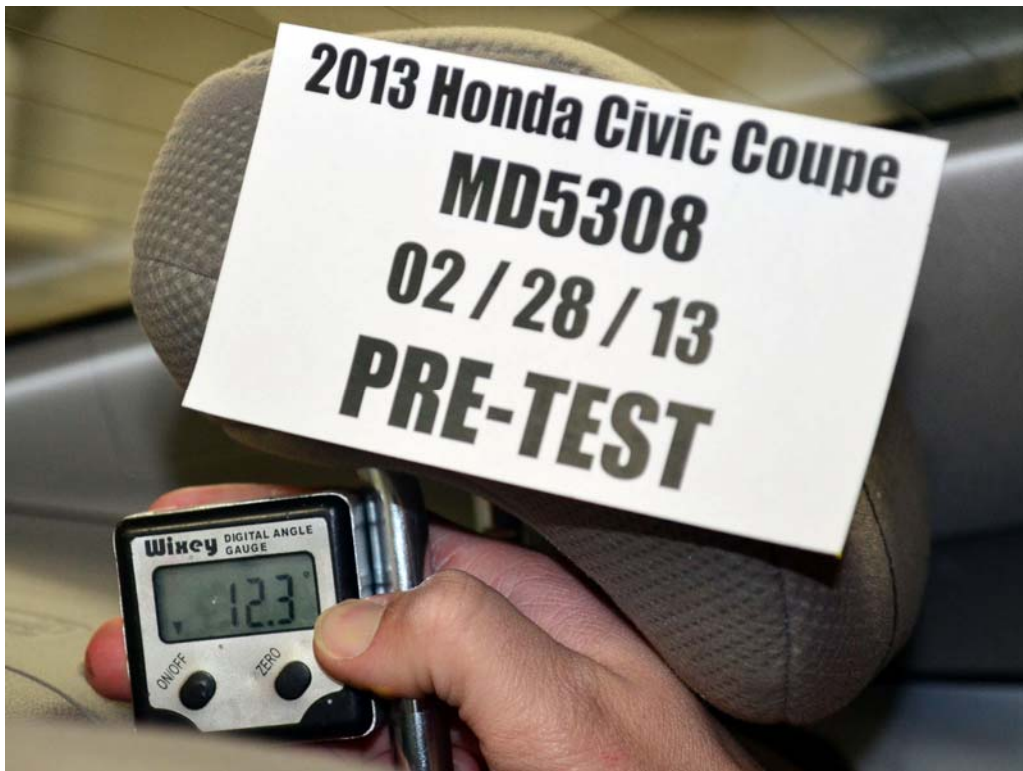


FIGURE 68. Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint



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 of Occupant Compartment



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



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



FIGURE 74. Post-Test Rear Passenger Inner Door Panel View



FIGURE 75. Post-Test Rear Passenger Dummy Close-Up
Head Contact with Vehicle Interior 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 Airbag**

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

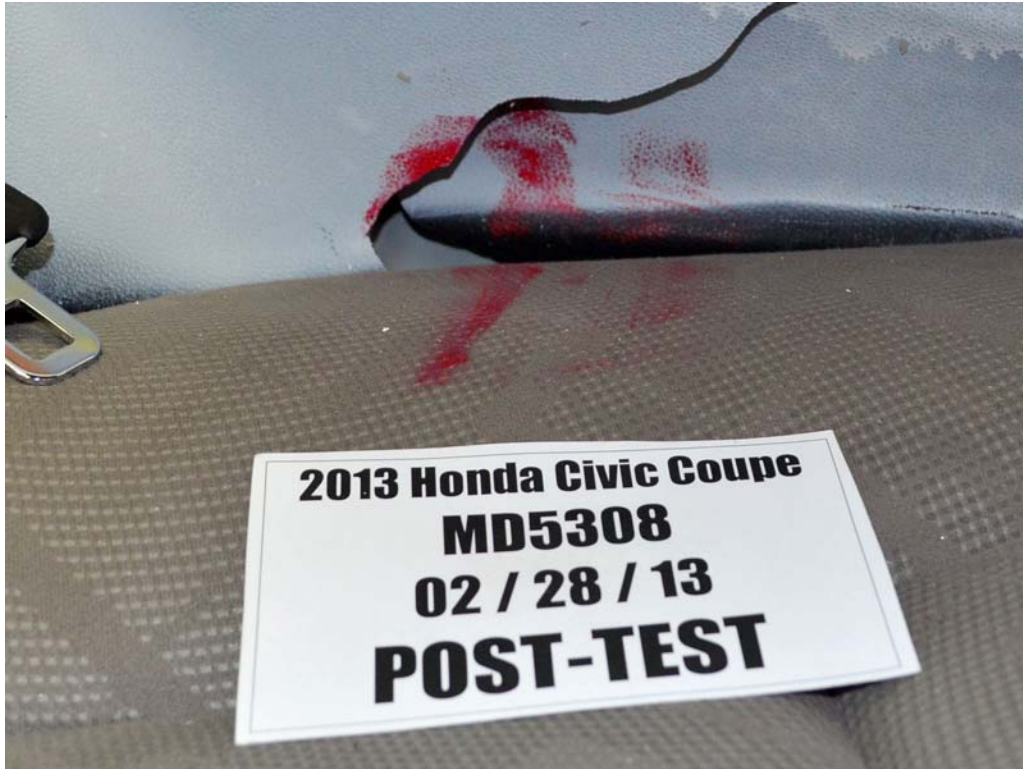


FIGURE 79. Post-Test Rear Passenger Dummy Close-Up
Pelvis Contact with Vehicle Interior View

Photograph Not Applicable

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

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

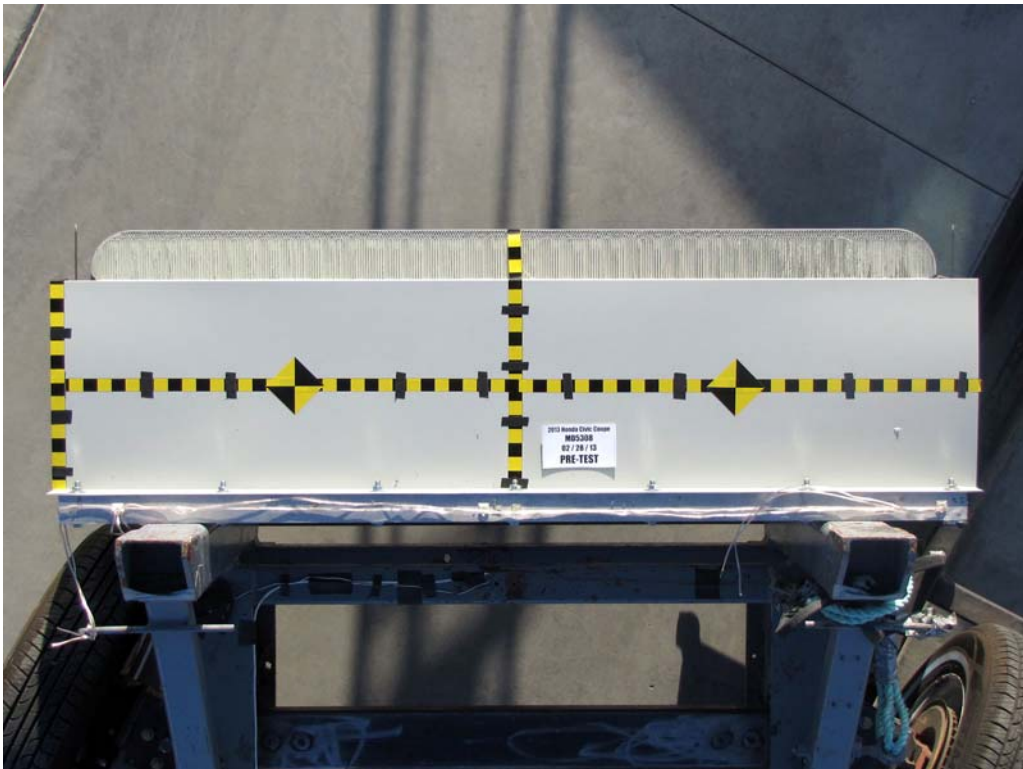


FIGURE 86. Pre-Test Top View of MDB Impactor Face



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 97. FMVSS No. 301 Static Rollover 90 Degrees

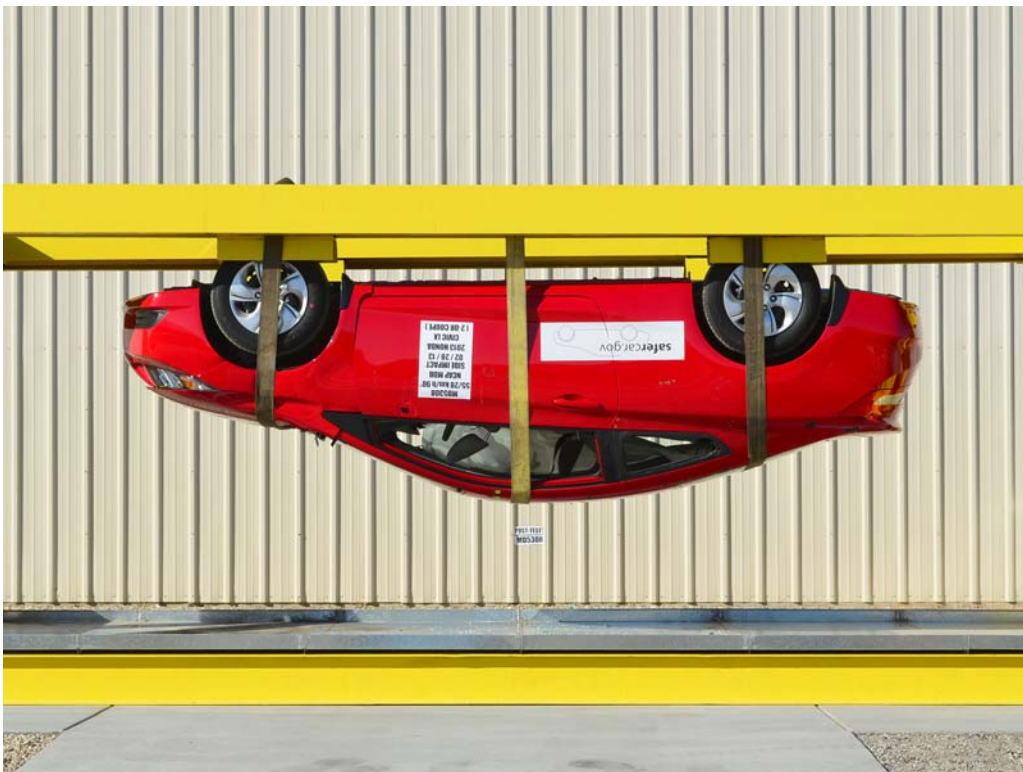


FIGURE 98. FMVSS No. 301 Static Rollover 180 Degrees

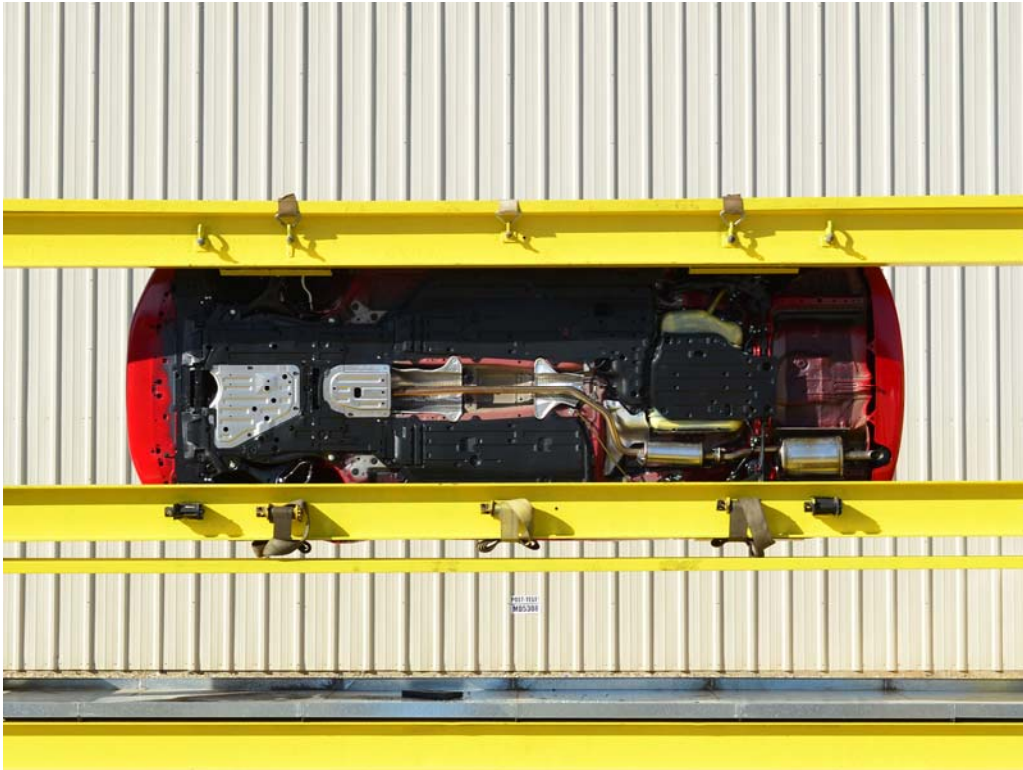


FIGURE 99. FMVSS No. 301 Static Rollover 270 Degrees



FIGURE 100. FMVSS No. 301 Static Rollover 360 Degrees

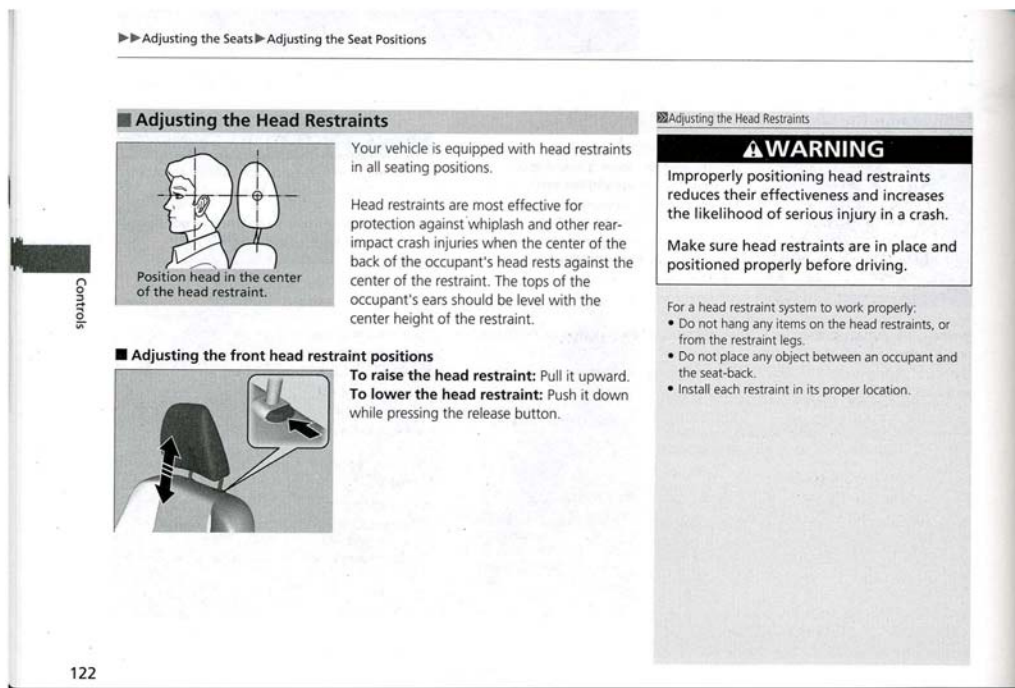


FIGURE 103. Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

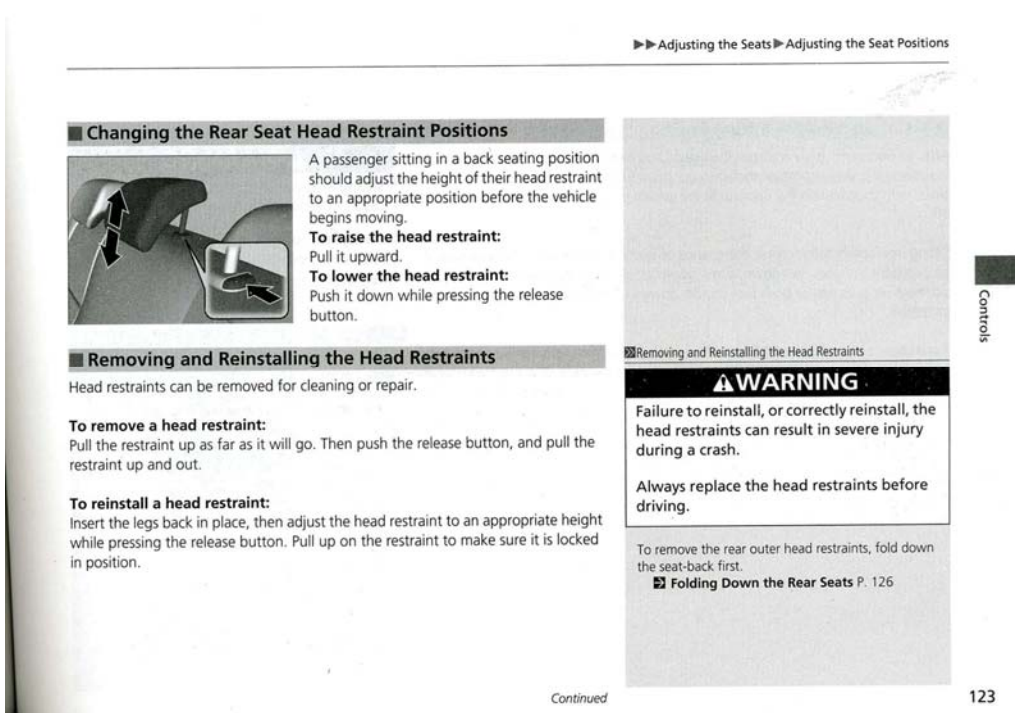


FIGURE 104. Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

**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)

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)

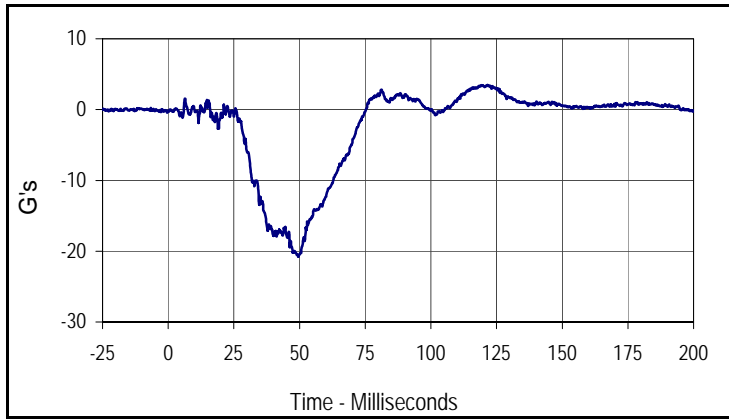
MDB Rear Acceleration (Y)

Left MDB Contact Switch

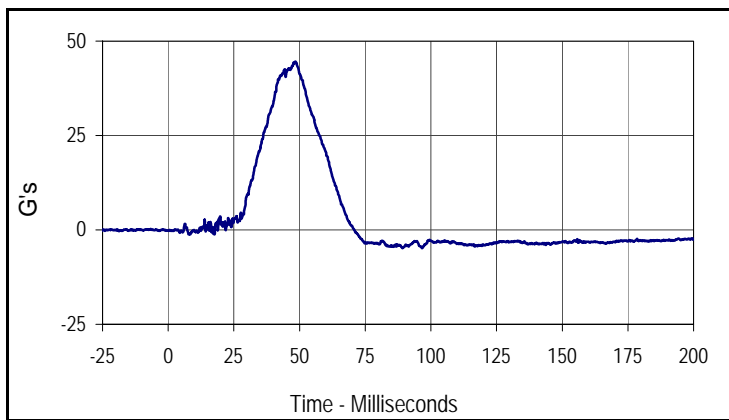
Right MDB Contact Switch

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

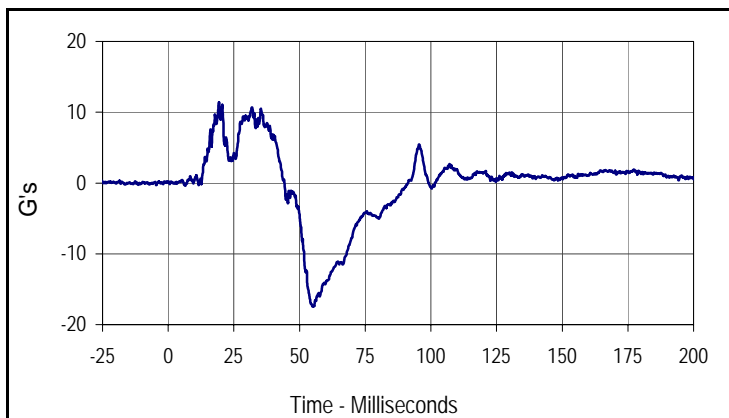
NHTSA No.: MD5308
 Test Date: 2/28/13



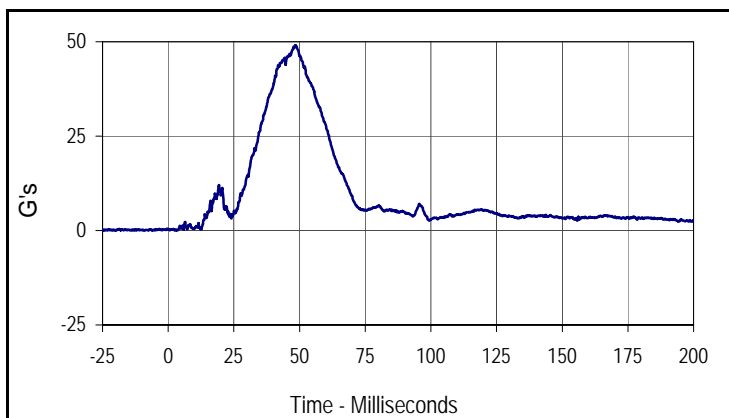
Curve Description			
Driver Head Acceleration X Primary			
Plot No.	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
3.5	121.5	-20.8	49.5



Curve Description			
Driver Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
44.6	48.5	-4.9	89.2



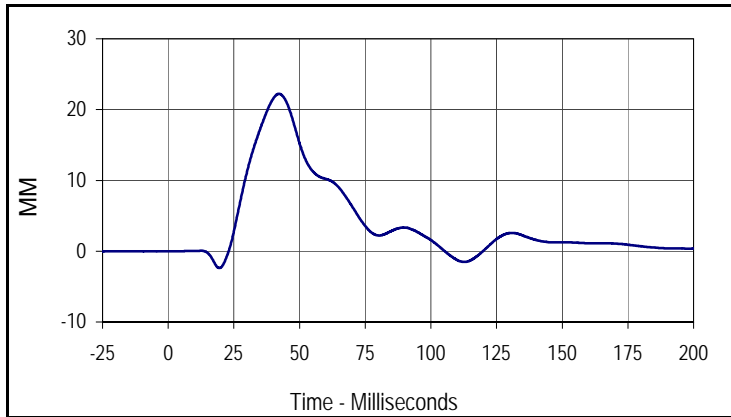
Curve Description			
Driver Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
11.4	19.3	-17.5	55.0



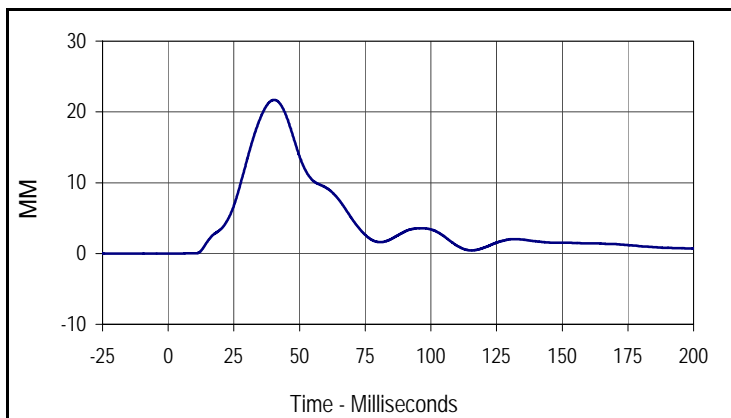
Curve Description			
Driver Head Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
004	RES	1000	G's
Max	Time	Min	Time
49.0	48.5	0.0	3.5

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

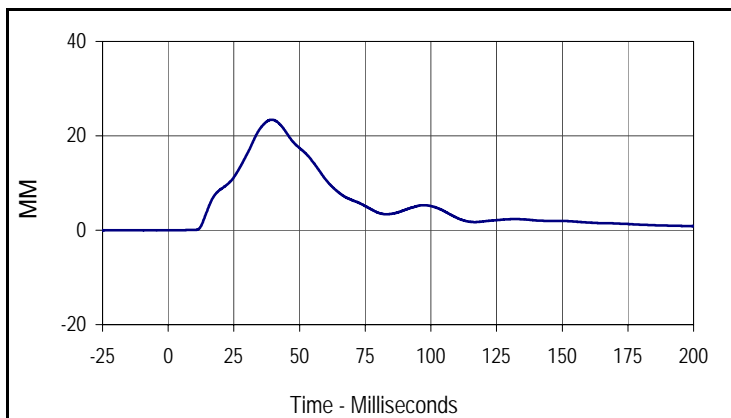
NHTSA No.: MD5308
 Test Date: 2/28/13



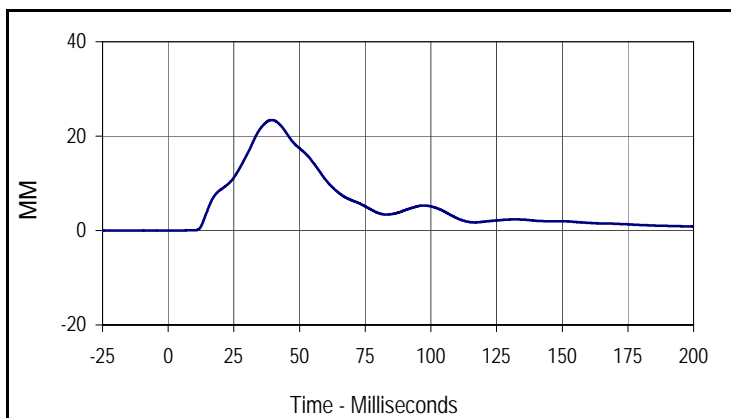
Curve Description			
Driver Upper Thorax Rib Deflection Y			
Plot No.	Type	SAE Class	Units
005	FIL	180	MM
Max	Time	Min	Time
22.2	42.2	-2.4	19.5



Curve Description			
Driver Middle Thorax Rib Deflection Y			
Plot No.	Type	SAE Class	Units
006	FIL	180	MM
Max	Time	Min	Time
21.7	40.3	0.0	0.6



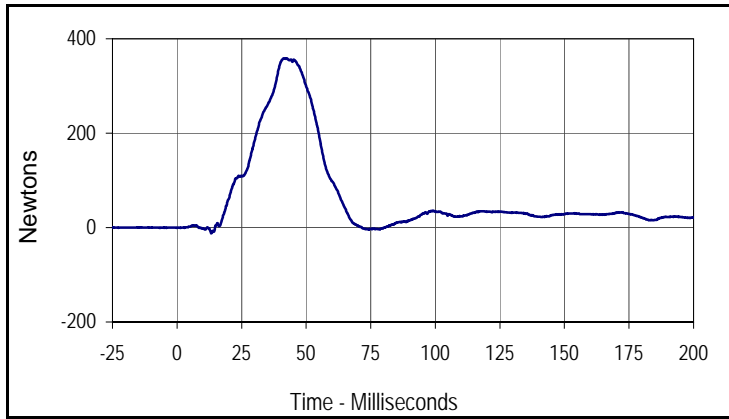
Curve Description			
Driver Lower Thorax Rib Deflection Y			
Plot No.	Type	SAE Class	Units
007	FIL	180	MM
Max	Time	Min	Time
23.4	39.4	0.0	3.3



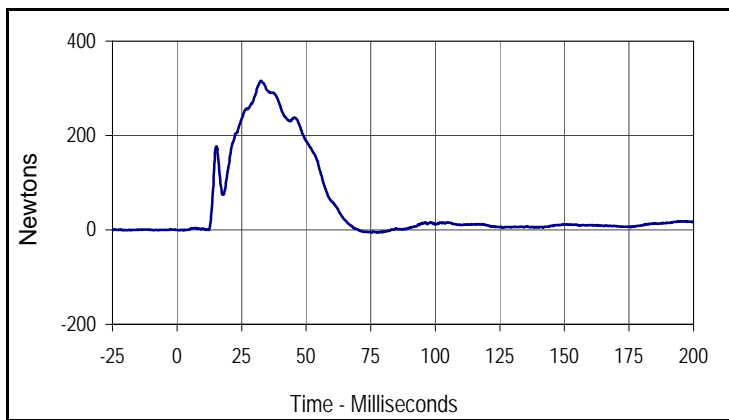
Curve Description			
Driver Thorax Rib Deflection Maximum			
Plot No.	Type	SAE Class	Units
010	FIL	180	MM
Max	Time	Min	Time
23.4	39.4	0.0	3.3

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

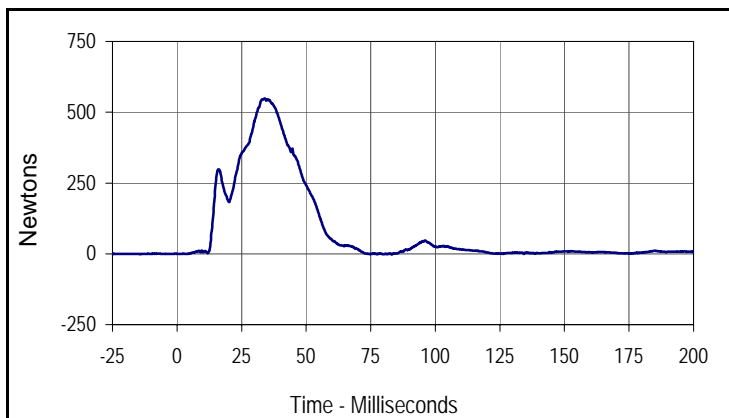
NHTSA No.: MD5308
 Test Date: 2/28/13



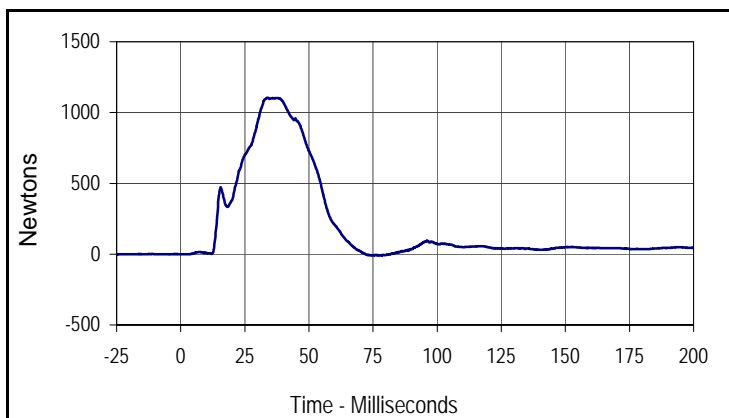
Curve Description			
Driver Anterior Abdominal Force Y			
Plot No.	Type	SAE Class	Units
008	FIL	600	Newtons
Max	Time	Min	Time
358.7	41.4	-12.5	13.3



Curve Description			
Driver Middle Abdominal Force Y			
Plot No.	Type	SAE Class	Units
009	FIL	600	Newtons
Max	Time	Min	Time
316.1	32.5	-5.4	77.5



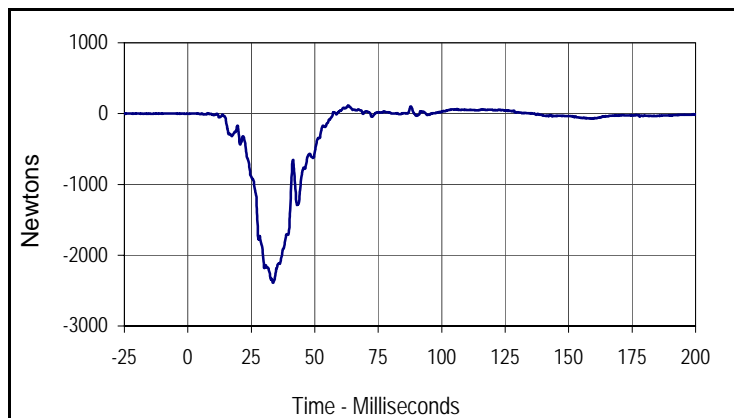
Curve Description			
Driver Posterior Abdominal Force Y			
Plot No.	Type	SAE Class	Units
011	FIL	600	Newtons
Max	Time	Min	Time
549.0	33.9	-2.1	83.2



Curve Description			
Driver Total Abdominal Force			
Plot No.	Type	SAE Class	Units
012	SUM	600	Newtons
Max	Time	Min	Time
1104.8	33.9	-9.9	77.5

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

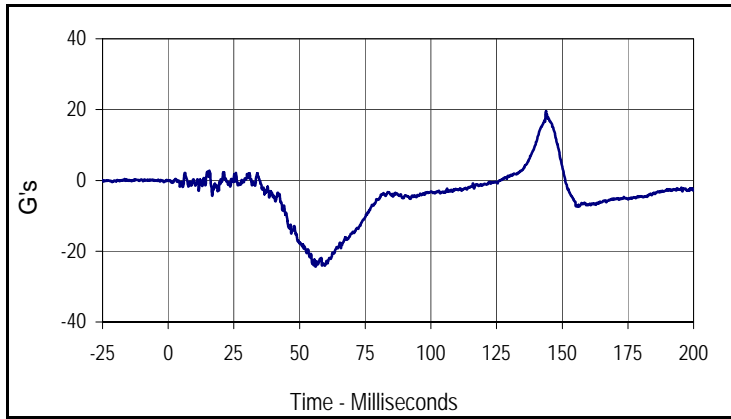
NHTSA No.: MD5308
 Test Date: 2/28/13



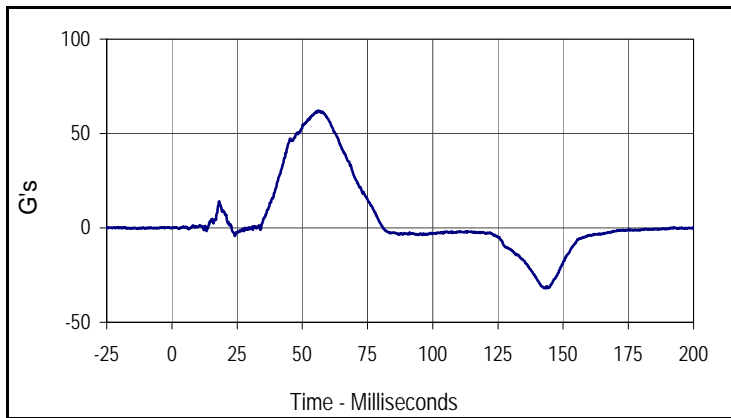
Curve Description			
Driver Pubic Symphysis Force Y			
Plot No.	Type	SAE Class	Units
013	FIL	600	Newtons
Max	Time	Min	Time
112.5	63.2	-2390.0	33.5

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

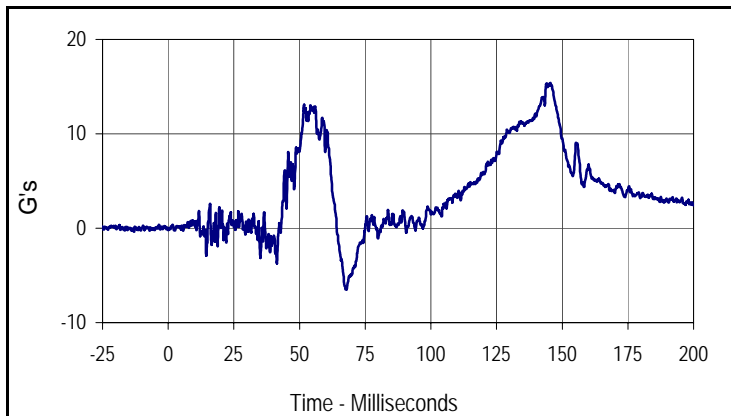
NHTSA No.: MD5308
 Test Date: 2/28/13



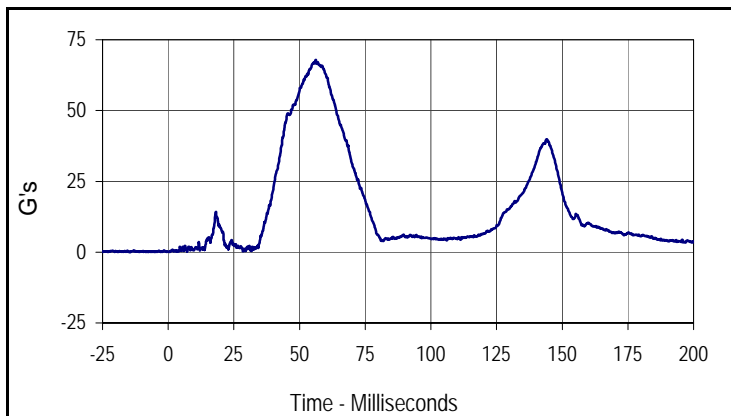
Curve Description			
Passenger Head Acceleration X Primary			
Plot No.	Type	SAE Class	Units
014	FIL	1000	G's
Max	Time	Min	Time
19.6	143.8	-24.4	56.1



Curve Description			
Passenger Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
015	FIL	1000	G's
Max	Time	Min	Time
62.2	56.2	-32.1	143.4



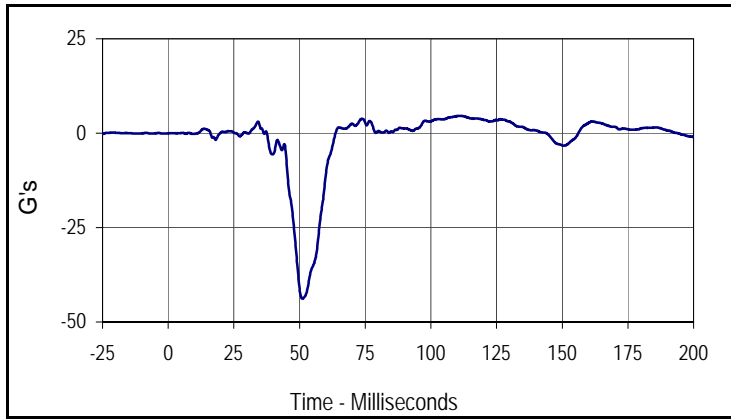
Curve Description			
Passenger Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
016	FIL	1000	G's
Max	Time	Min	Time
15.4	145.4	-6.5	67.6



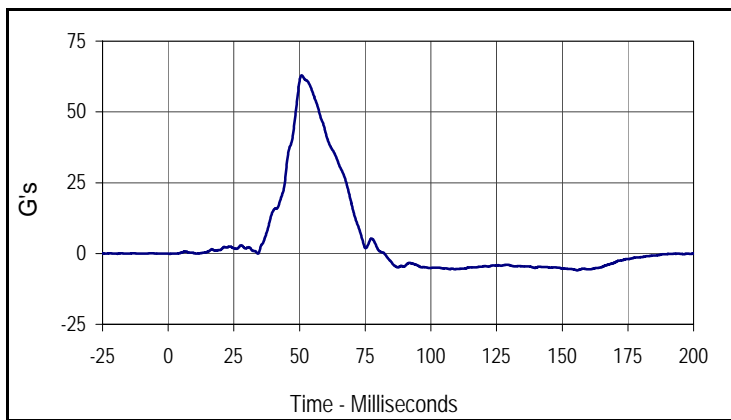
Curve Description			
Passenger Head Acceleration Resultant Primary			
Plot No.	Type	SAE Class	Units
017	RES	1000	G's
Max	Time	Min	Time
67.9	56.1	0.1	0.6

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

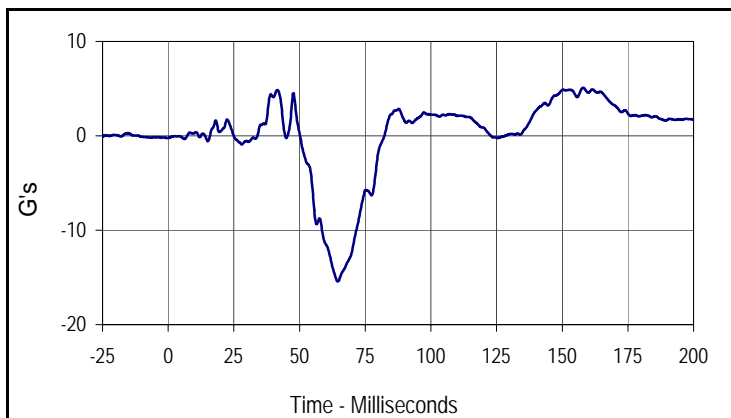
NHTSA No.: MD5308
 Test Date: 2/28/13



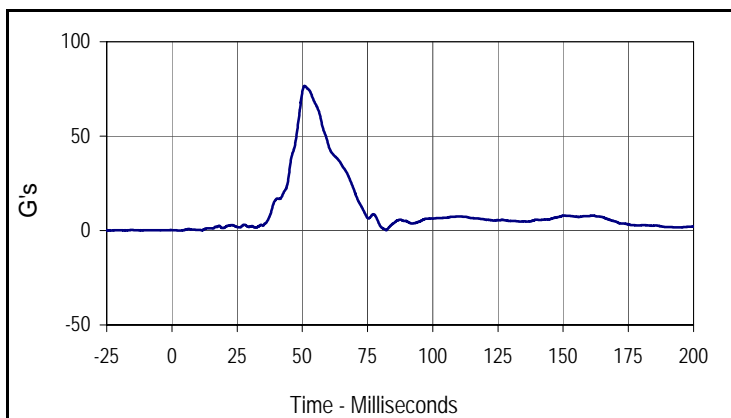
Curve Description			
Passenger Lower Spine T12 Acceleration X			
Plot No.	Type	SAE Class	Units
019	FIL	180	G's
Max	Time	Min	Time
4.6	110.5	-43.8	51.1



Curve Description			
Passenger Lower Spine T12 Acceleration Y			
Plot No.	Type	SAE Class	Units
020	FIL	180	G's
Max	Time	Min	Time
63.0	50.8	-5.9	155.7



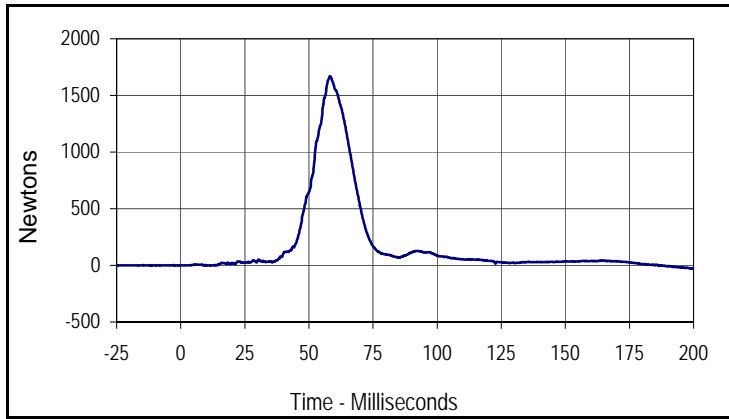
Curve Description			
Passenger Lower Spine T12 Acceleration Z			
Plot No.	Type	SAE Class	Units
021	FIL	180	G's
Max	Time	Min	Time
5.1	157.9	-15.4	64.5



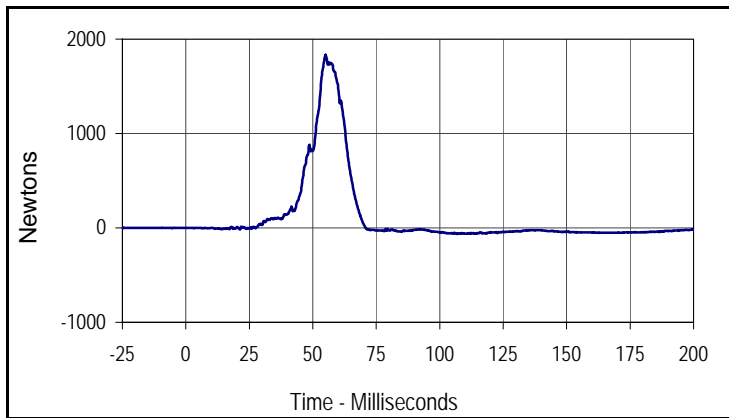
Curve Description			
Passenger Lower Spine T12 Acceleration Res.			
Plot No.	Type	SAE Class	Units
022	RES	180	G's
Max	Time	Min	Time
76.7	50.9	0.1	2.6

Test Vehicle: 2013 Honda Civic LX 2-Door Coupe
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

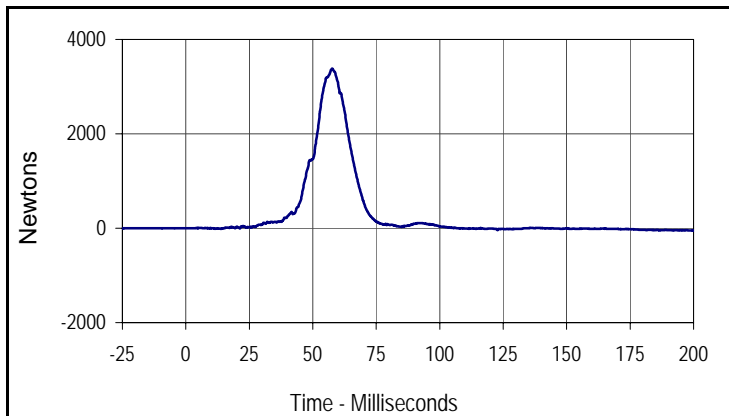
NHTSA No.: MD5308
 Test Date: 2/28/13



Curve Description			
Passenger Iliac Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
023	FIL	600	Newtons
Max	Time	Min	Time
1668.9	58.2	-27.6	199.5



Curve Description			
Passenger Acetabulum Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
024	FIL	600	Newtons
Max	Time	Min	Time
1833.5	55.1	-63.0	106.9



Curve Description			
Passenger Total Pelvic Force			
Plot No.	Type	SAE Class	Units
018	SUM	600	Newtons
Max	Time	Min	Time
3380.6	57.7	-49.3	198.6

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: 2/21/13



ATD Serial No.: F035

Test I.D.: N/A

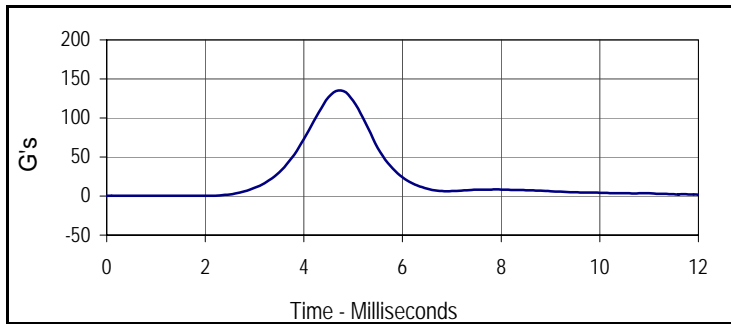
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	30.3	Pass
1 Sitting Height	mm	900 - 918	907	Pass
2 Seat to Shoulder Joint	mm	558 - 572	564	Pass
3 Seat to Lower Face of Thoracic Spine Box	mm	346 - 356	350	Pass
4 Seat to Hip Joint (Center of Bolt)	mm	97 - 103	100	Pass
5 Sole to Seat, Sitting	mm	333 - 451	389	Pass
6 Head Width	mm	152 - 158	155	Pass
7 Shoulder / Arm Width	mm	461 - 479	470	Pass
8 Thorax Width	mm	322 - 332	324	Pass
9 Abdomen Width	mm	273 - 287	280	Pass
10 Pelvis Lap Width	mm	359 - 373	365	Pass
11 Head Depth	mm	196 - 206	202	Pass
12 Thorax Depth	mm	262 - 272	269	Pass
13 Abdomen Width	mm	194 - 204	198	Pass
14 Pelvis Depth	mm	235 - 245	239	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	611	Pass
Overall Test Results				Pass

Test Program: ES2re Head Drop Test
 ATD Serial No.: F035

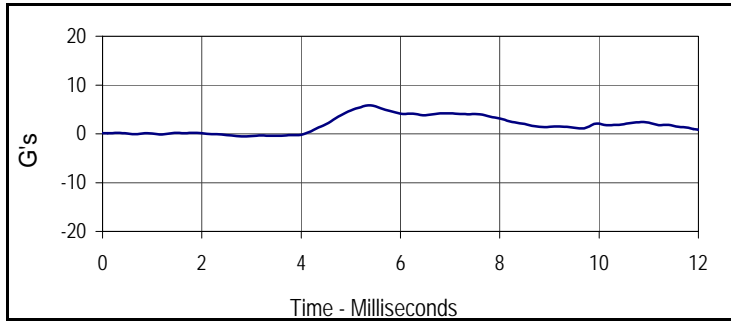
Test Date: 2/21/13
 Test I.D.: F035HD045



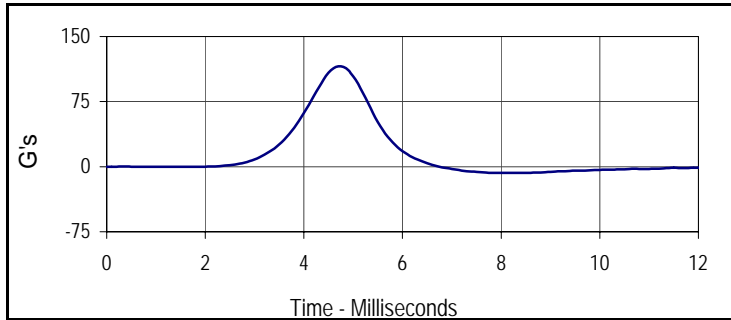
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	325	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.6	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.7	Pass
Peak Head Resultant Acceleration	G's	125 to 155	135.4	Pass
Peak Head X Acceleration	G's	≤15	5.8	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	6.2	Pass
Overall Test Results				Pass



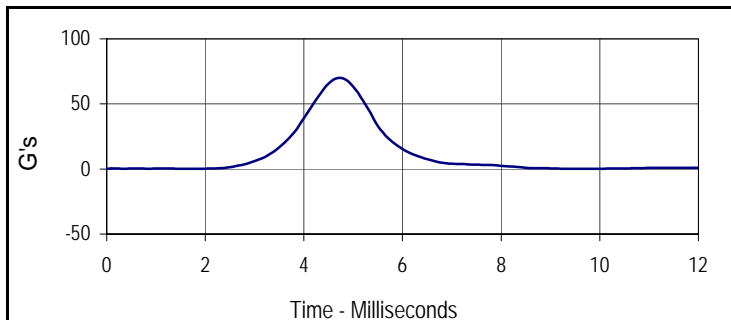
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
135.4	4.7	0.2	1.7



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
5.8	5.4	-0.5	2.9



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
115.8	4.7	-7.3	8.4



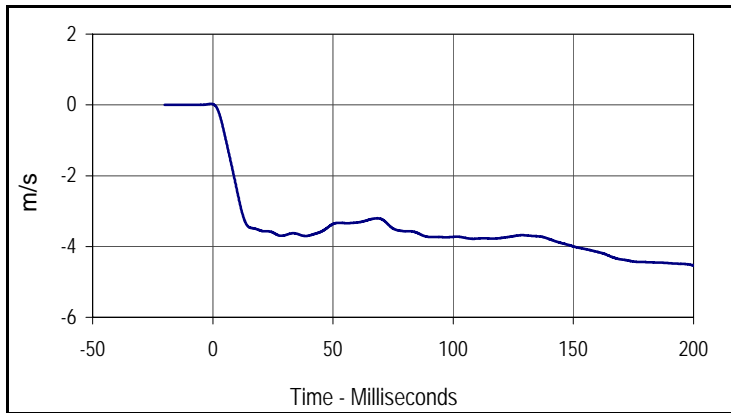
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
70.1	4.7	0.0	9.6

Test Program: ES2re Neck Flexion Test
 ATD Serial No.: F035

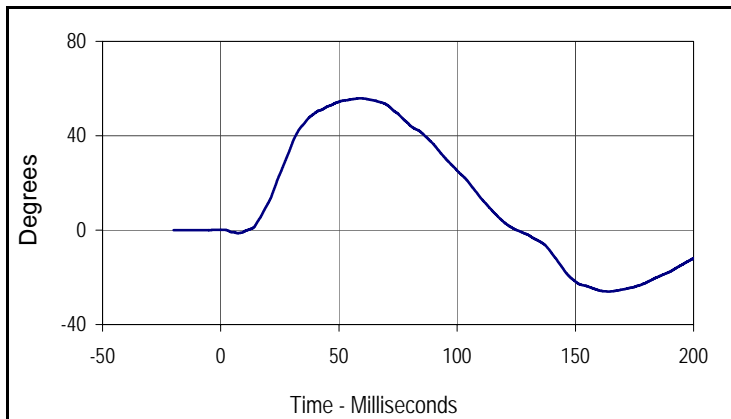
Test Date: 2/21/13
 Test I.D.: F035NB045



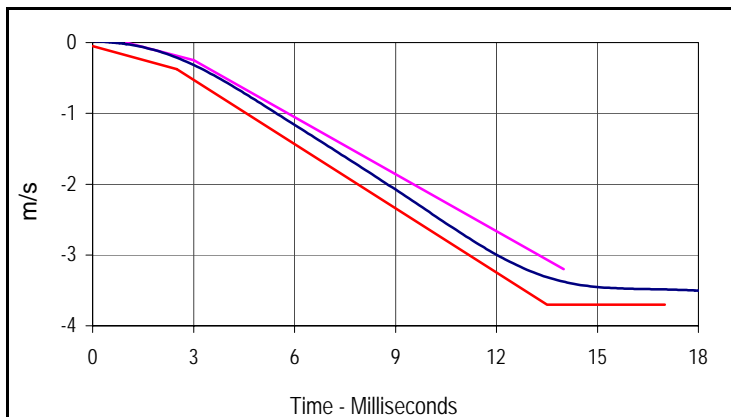
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	365	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.6	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.7	Pass
Pendulum Velocity	m/s	3.3 to 3.5	3.45	Pass
Headform Flexion	Max	49 to 59	55.9	Pass
	Time	54 to 66	58.6	Pass
Headform Flexion Decay (Peak to Zero)	msec	53 to 88	66.6	Pass
Overall Test Results				Pass



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.8	-4.5	200.0



Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	180	Degrees
Max	Time	Min	Time
55.9	58.6	-26.0	164.0



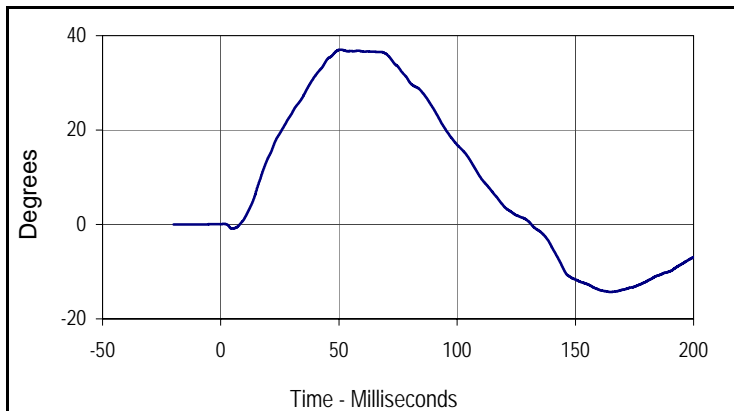
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.8	-4.5	200.0

Velocity Corridors

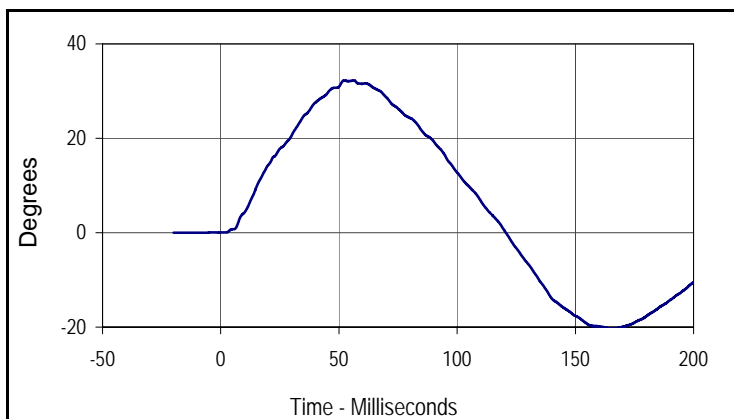
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.0	-0.03	2.5	-0.375
14.0	-3.20	13.5	-3.70
		17.0	-3.70

Test Program: ES2re Neck Flexion Test
 ATD Serial No.: F035

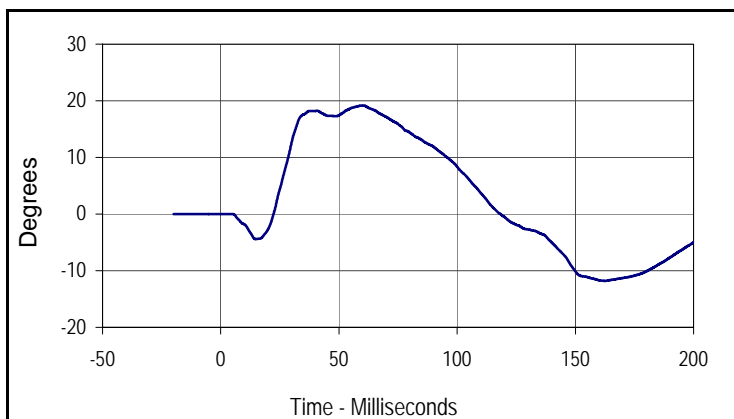
Test Date: 2/21/13
 Test I.D.: F035NB045



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
003	FIL	180	Degrees
Max	Time	Min	Time
37.0	50.7	-14.3	164.9



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
004	FIL	180	Degrees
Max	Time	Min	Time
32.3	56.3	-20.3	165.1



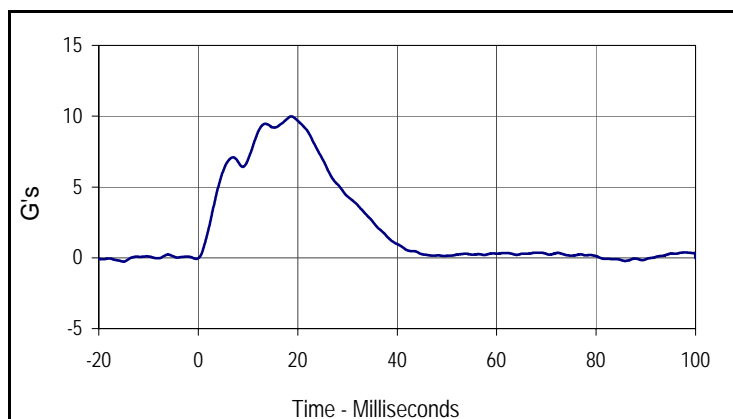
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
005	FIL	180	Degrees
Max	Time	Min	Time
19.2	59.9	-11.8	162.5

Test Program: ES2re Shoulder Impact Test
 ATD Serial No.: F035

Test Date: 2/21/13
 Test I.D.: F035SH045



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	400	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.6	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.7	Pass
Pendulum Speed	m/s	4.2 to 4.4	4.31	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	10.0	Pass
Overall Test Results				Pass



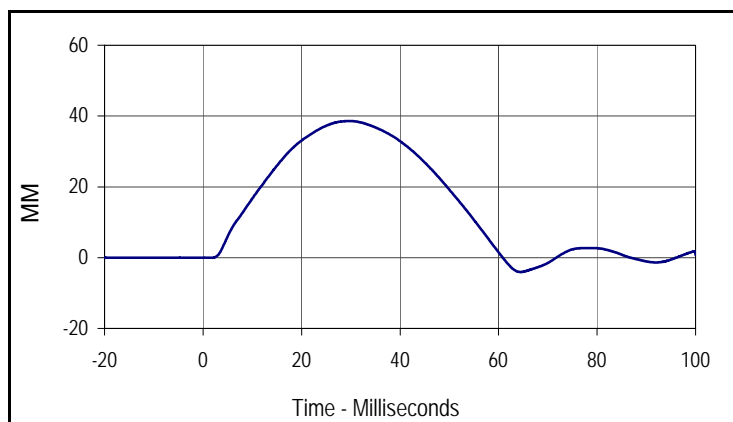
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
10.0	18.7	-0.3	-15.0

Test Program: ES2re Thorax - Rib Drop Test
 ATD Serial No.: F035 Rib # 1

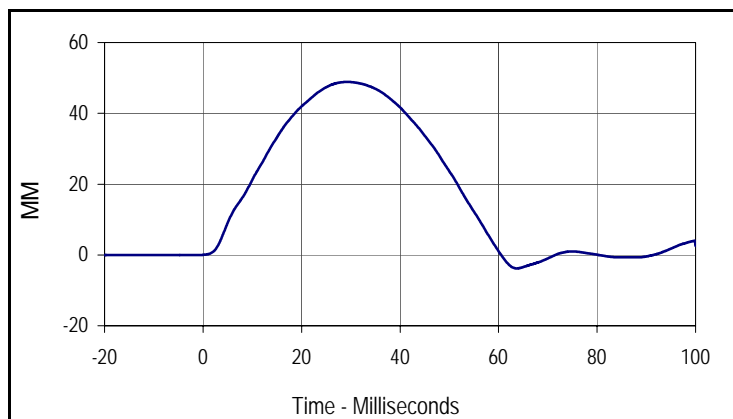
Test Date: 2/21/13
 Test I.D.: F035RB1045



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	425	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.7	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	38.6	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	48.9	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
38.6	29.7	-4.1	64.4



Curve Description			
Upper Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
48.9	29.3	-3.8	63.7

Test Program: ES2re Thorax - Rib Drop Test

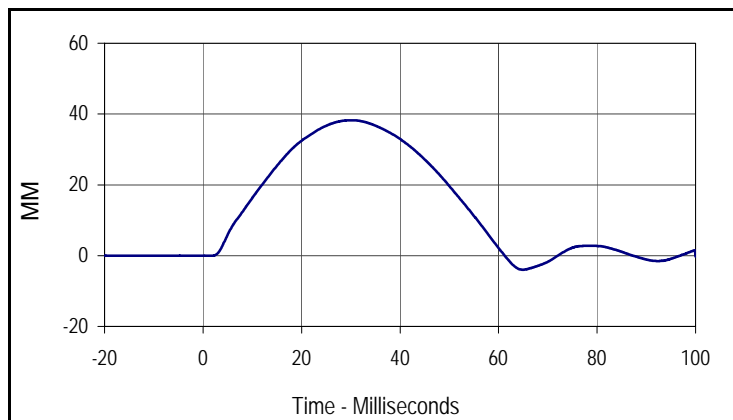
Test Date: 2/21/13



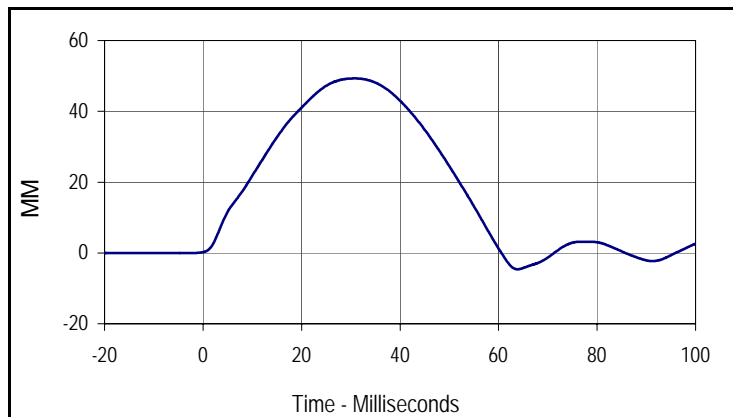
ATD Serial No.: F035 Rib # 2

Test I.D.: F035RB2045

Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	440	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.6	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.6	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	38.2	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	49.3	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
38.2	30.2	-4.0	64.9



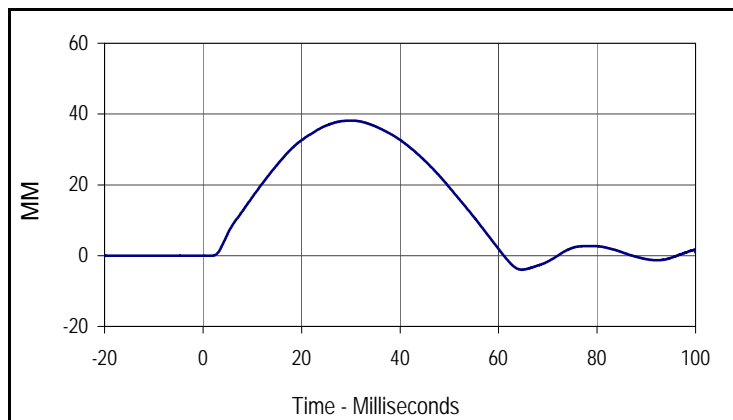
Curve Description			
Middle Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
49.3	30.8	-4.6	63.9

Test Program: ES2re Thorax - Rib Drop Test
 ATD Serial No.: F035 Rib # 3

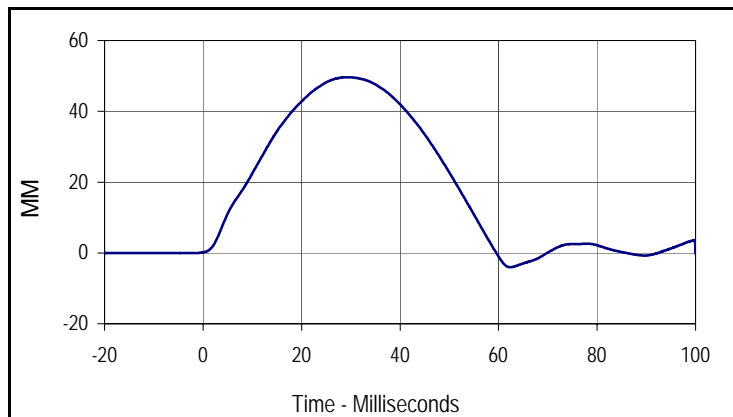
Test Date: 2/21/13
 Test I.D.: F035RB3045



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	455	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.6	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.6	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	49.6	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
38.1	30.1	-4.0	64.7



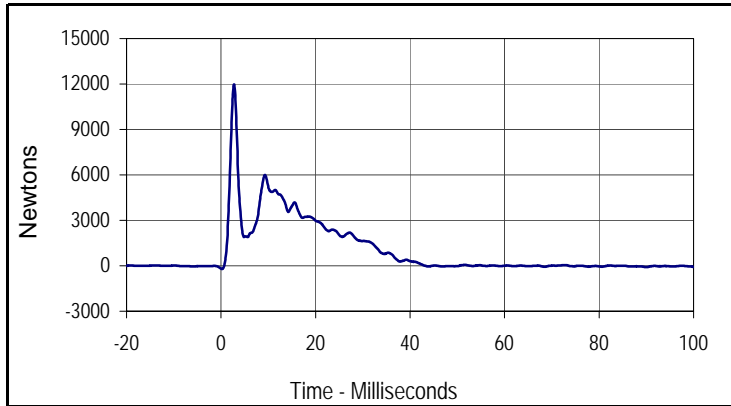
Curve Description			
Lower Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
49.6	29.4	-4.0	62.4

Test Program: ES2re Thorax - Full Body Impact Test
 ATD Serial No.: F035

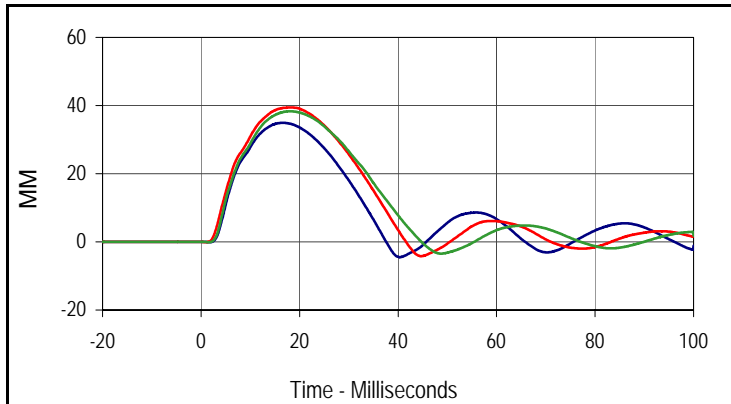
Test Date: 2/21/13
 Test I.D.: F035TH045



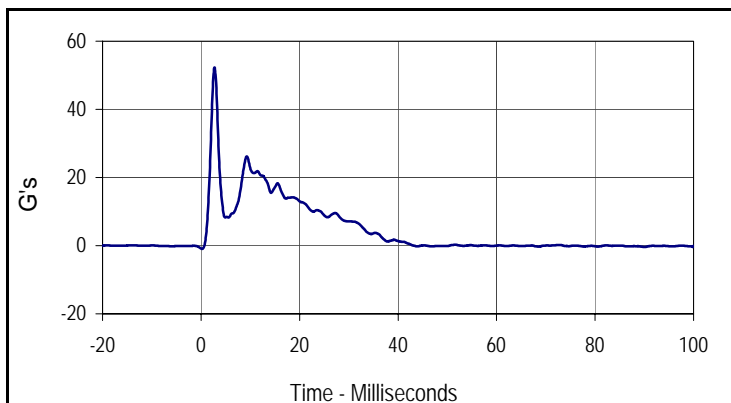
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	495	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.7	Pass
Peak Impactor Velocity	m/s	5.4 to 5.6	5.59	Pass
Peak Impactor Force	N	5100 to 6200	5992.5	Pass
	msec	> 6.0 msec	9.3	Pass
Peak Upper Rib Deflection	mm	34 to 41	34.9	Pass
Peak Middle Rib Deflection	mm	37 to 45	39.4	Pass
Peak Lower Rib Deflection	mm	37 to 44	38.3	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
11960.6	2.7	-212.7	0.2



Curve Description			
Upper, Middle, Lower Rib Deflections			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max (Upper)	Time	Min (Upper)	Time
34.9	16.6	-4.5	40.3
Max (Middle)	Time	Min (Middle)	Time
39.4	18.3	-4.2	44.7
Max (Lower)	Time	Min (Lower)	Time
38.3	18.1	-3.5	48.8



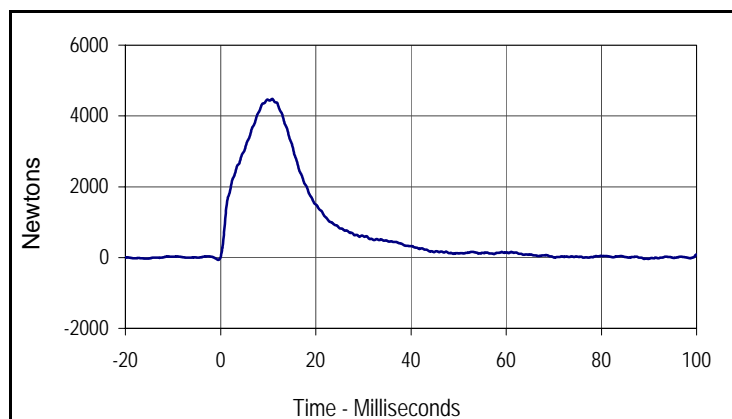
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
52.2	2.7	-0.9	0.2

Test Program: ES2re Abdomen Impact Test
 ATD Serial No.: F035

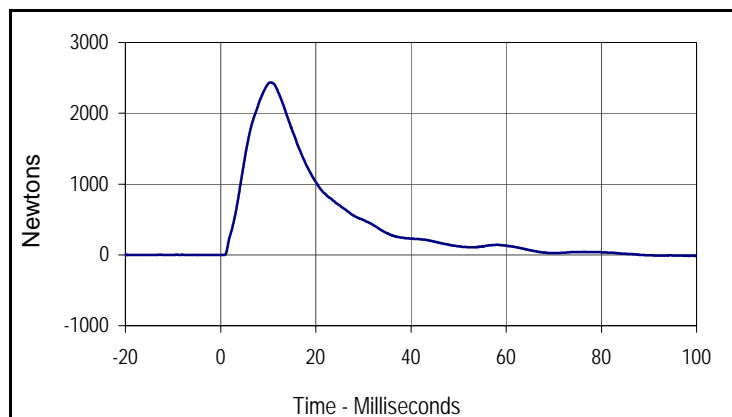
Test Date: 2/21/13
 Test I.D.: F035ABD045



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	515	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.7	Pass
Probe Velocity	m/s	3.9 to 4.1	3.95	Pass
Peak Impactor Force	N	4000 to 4800	4481.7	Pass
	msec	10.6 to 13.0	10.8	Pass
Sum of Abdominal Forces	N	2200 to 2700	2436.9	Pass
	msec	10.0 to 12.3	10.5	Pass
Overall Test Results				Pass



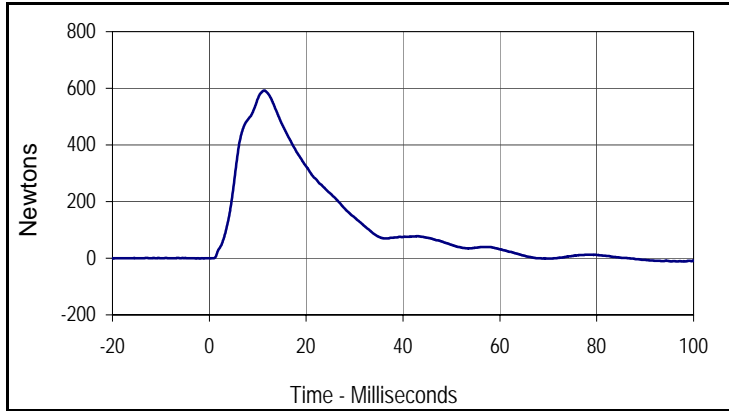
Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
4481.7	10.8	-63.2	-0.5



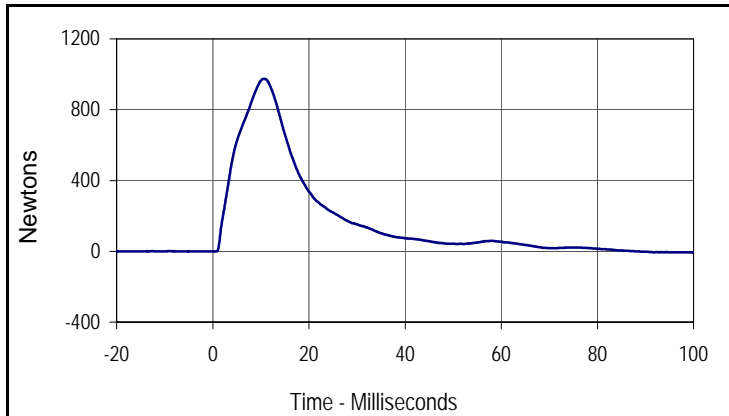
Curve Description			
Abdomen Sum Resultant			
Plot No.	Type	SAE Class	Units
002	RES	600	Newtons
Max	Time	Min	Time
2436.9	10.5	-14.3	98.5

Test Program: ES2re Abdomen Impact Test
 ATD Serial No.: F035

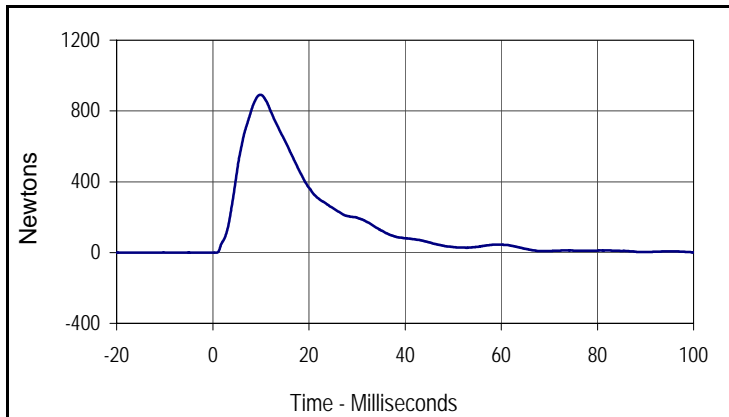
Test Date: 2/21/13
 Test I.D.: F035ABD045



Curve Description			
Front Abdomen Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
592.6	11.3	-11.3	96.6



Curve Description			
Middle Abdomen Force			
Plot No.	Type	SAE Class	Units
004	FIL	600	Newtons
Max	Time	Min	Time
974.9	10.7	-6.4	98.6



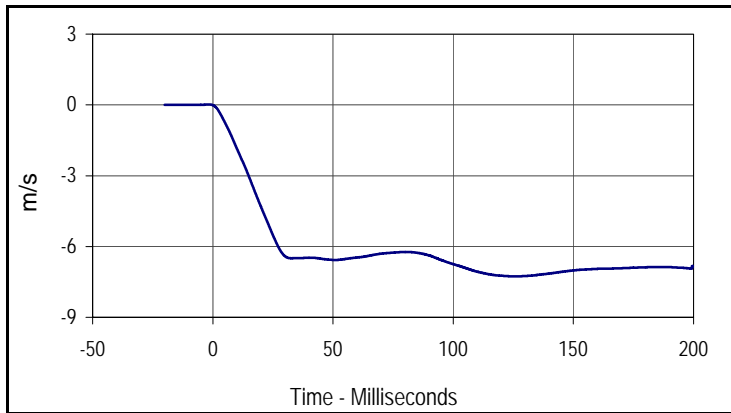
Curve Description			
Rear Abdomen Force			
Plot No.	Type	SAE Class	Units
005	FIL	600	Newtons
Max	Time	Min	Time
891.3	9.9	-0.8	-18.3

Test Program: ES2re Lumbar Flexion Test
 ATD Serial No.: F035

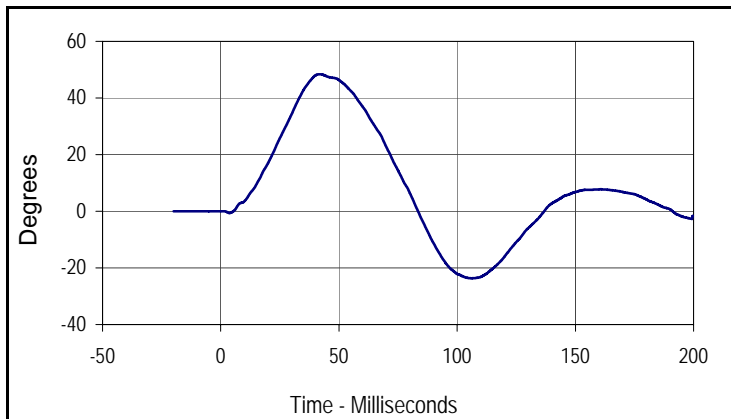
Test Date: 2/21/13
 Test I.D.: F035LB045



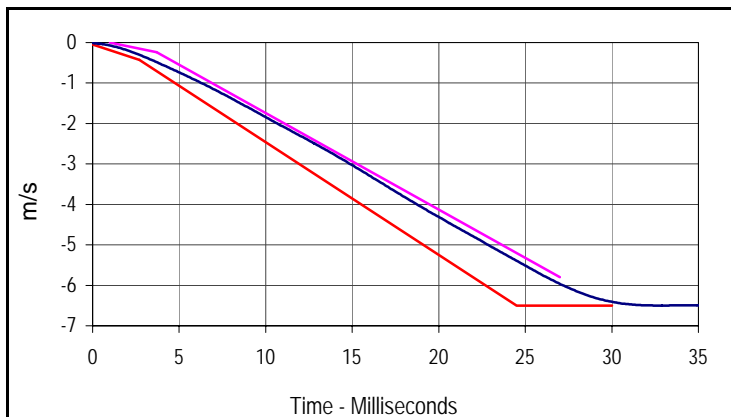
Tested Parameter	Units	Specification	Result	Pass/Fail
Lumbar Spine Assembly Soak Time	Minutes	≥240	570	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.6	Pass
Pendulum Velocity	m/s	5.95 to 6.15	6.05	Pass
Headform Rotation	Max	45 to 55	48.4	Pass
	Time	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 Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.0	-7.3	126.3



Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	180	Degrees
Max	Time	Min	Time
48.4	42.3	-23.7	106.7



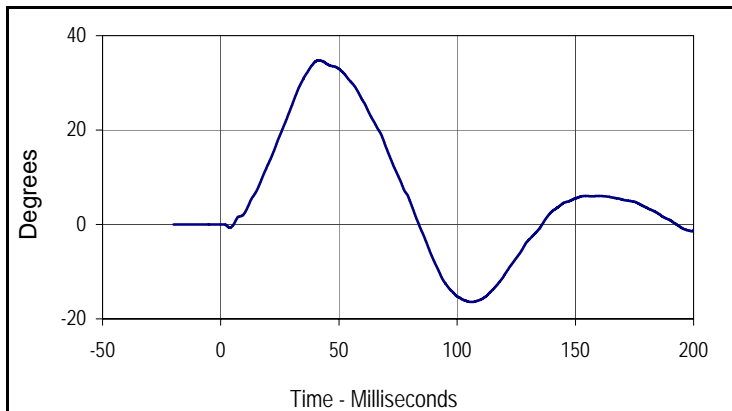
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.0	-7.3	126.3

Velocity Corridors

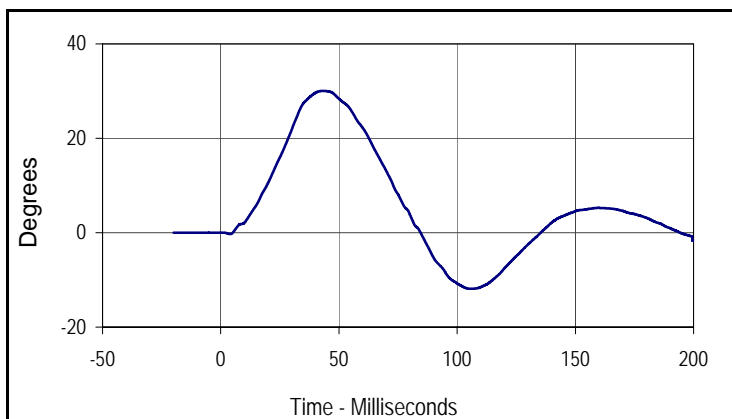
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.7	-0.24	2.7	-0.425
27.0	-5.80	24.5	-6.50
		30.0	-6.50

Test Program: ES2re Lumbar Flexion Test
 ATD Serial No.: F035

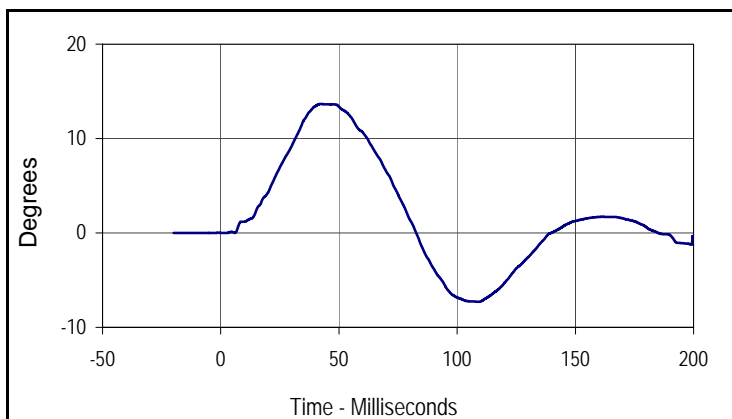
Test Date: 2/21/13
 Test I.D.: F035LB045



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
003	FIL	180	Degrees
Max	Time	Min	Time
34.8	42.0	-16.4	106.6



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
004	FIL	180	Degrees
Max	Time	Min	Time
30.0	43.6	-11.9	106.4



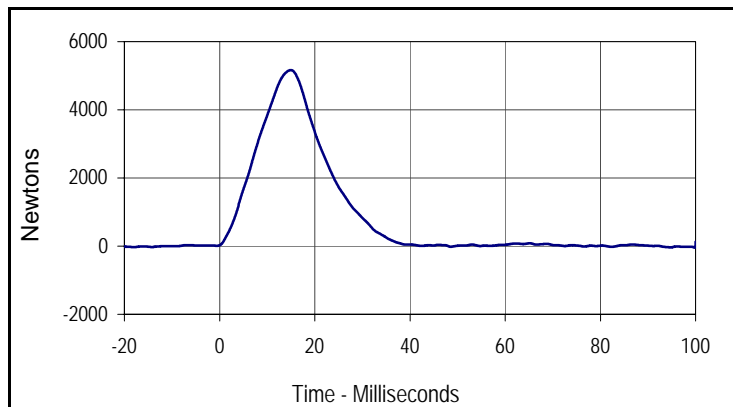
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
005	FIL	180	Degrees
Max	Time	Min	Time
13.7	43.0	-7.3	109.7

Test Program: ES2re Pelvis Impact Test
 ATD Serial No.: F035

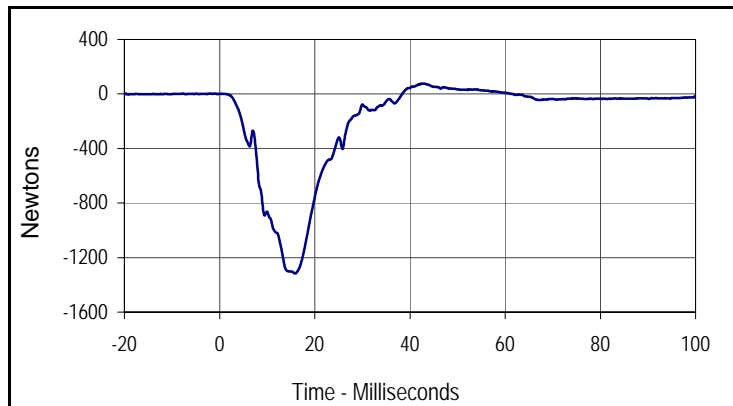
Test Date: 2/21/13
 Test I.D.: F035PL045



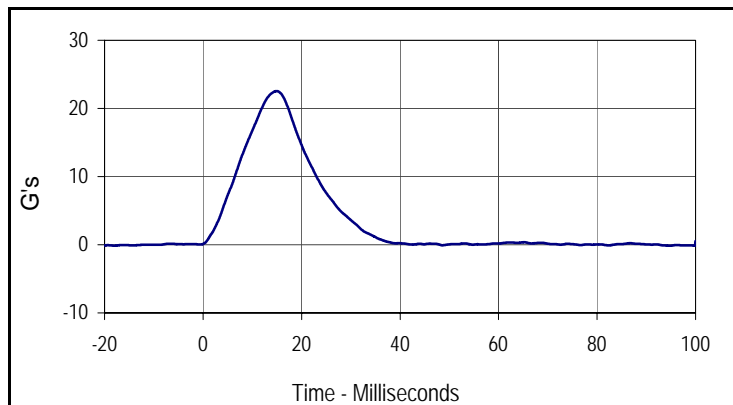
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	630	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.6	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.31	Pass
Peak Impactor Force	N	4700 to 5400	5165.7	Pass
	msec	11.8 to 16.1	14.9	Pass
Peak Pubic Symphysis Load	N	-1230 to -1590	-1316.6	Pass
	msec	12.2 to 17.0	15.8	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
5165.7	14.9	-35.9	94.8



Curve Description			
Pubic Symphysis Force Y			
Plot No.	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
77.1	42.7	-1316.6	15.8



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
22.6	14.9	-0.2	94.8

Test Program: SID IIs External Measurements

Test Date: 2/22/13



ATD Serial No.: 307

Test I.D.: N/A

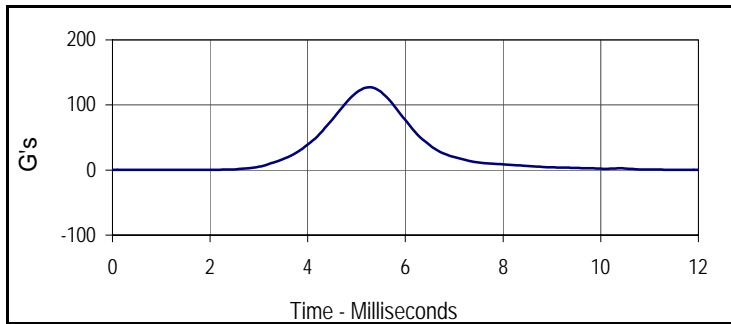
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A Sitting Height	mm	772 - 788	778	Pass
B Shoulder Pivot Height	mm	437 - 453	443	Pass
C H-Point Height	mm	79 - 89	85	Pass
D H-Point from Seatback	mm	141 - 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

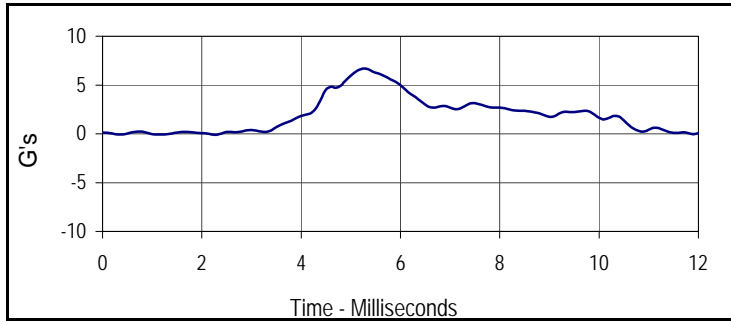
Test Date: 2/22/13
 Test I.D.: 307HD052



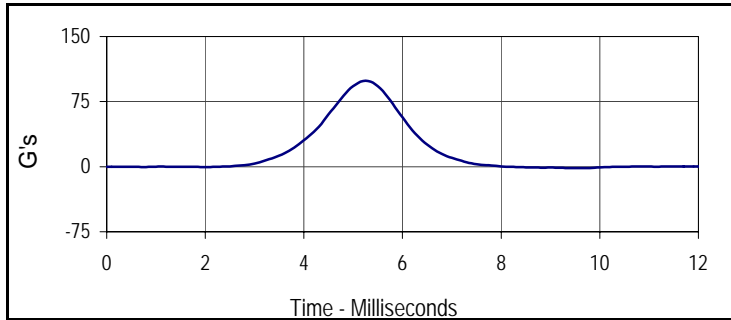
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	365	Pass
Temperature During Soak	Max	18.9 to 25.6	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.6	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.6	Pass
Peak Head Resultant Acceleration	G's	115 to 137	127.0	Pass
Peak Head X Acceleration	G's	<15	6.7	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	3.3	Pass
Overall Test Results				Pass



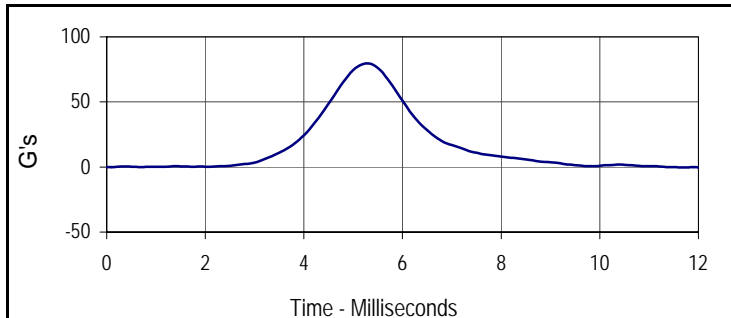
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
127.0	5.3	0.2	1.0



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
6.7	5.3	-0.1	2.3



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
98.8	5.3	-1.7	9.4



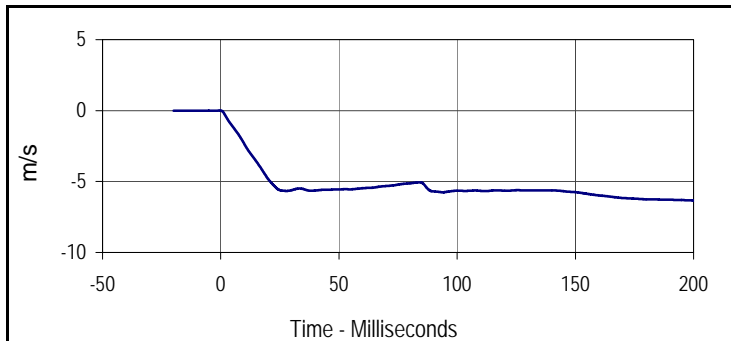
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
79.5	5.3	-0.3	11.7

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

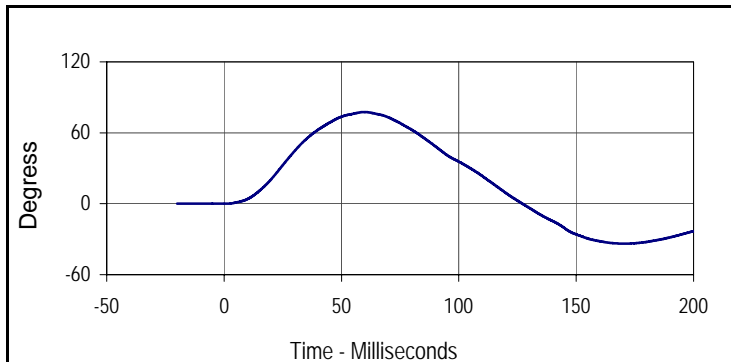
Test Date: 2/22/13
 Test I.D.: 307NB052



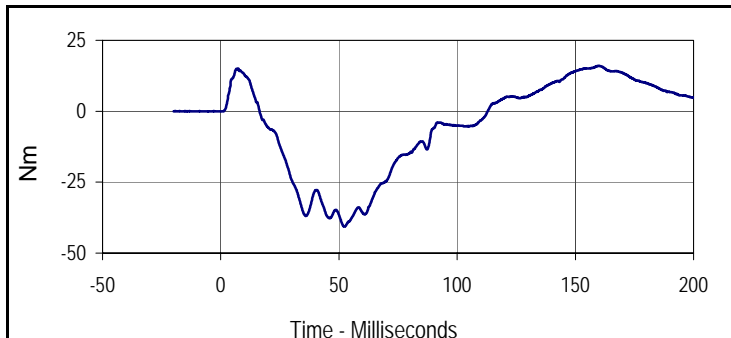
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	420	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass	
	Min		20.8	Pass	
Humidity During Soak	Max	10.0 to 70.0	30.6	Pass	
	Min		28.6	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	29.7	Pass	
Pendulum Velocity	m/s	5.51 to 5.63	5.54	Pass	
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.36	Pass
	15 msec	m/s	-3.30 to -4.10	-3.57	Pass
	20 msec	m/s	-4.40 to -5.40	-4.81	Pass
	25 msec	m/s	-5.40 to -6.10	-5.61	Pass
	25-100 msec	m/s	-5.50 to -6.20	-5.75	Pass
D-Plane Rotation	Max	Degrees	71 to 81	77.6	Pass
	Time	msec	50 to 70	59.7	Pass
Peak Occipital Condyle Moment	Nm	-36 to -44	-40.6	Pass	
Decaying Moment Time to Cross 0 Nm	msec	102 to 126	112.9	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.4	-6.3	200.0



Curve Description			
Maximum Translation Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degree
Max	Time	Min	Time
77.6	59.7	-33.7	170.7



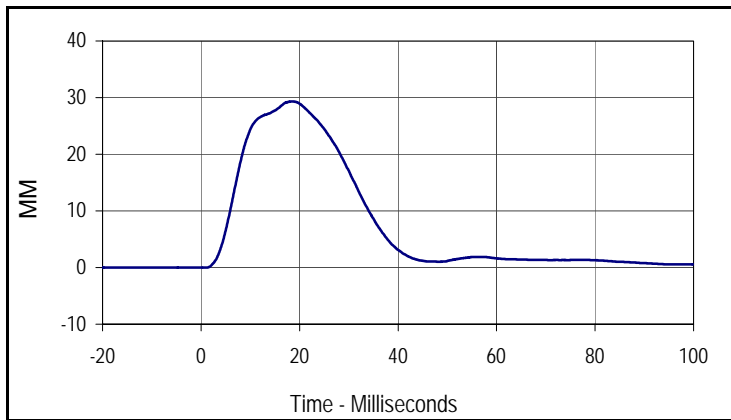
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
16.0	159.8	-40.6	52.4

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

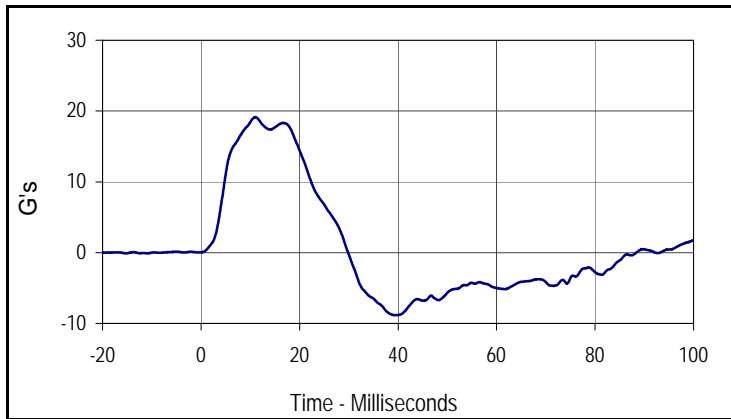
Test Date: 2/22/13
 Test I.D.: 307SH052



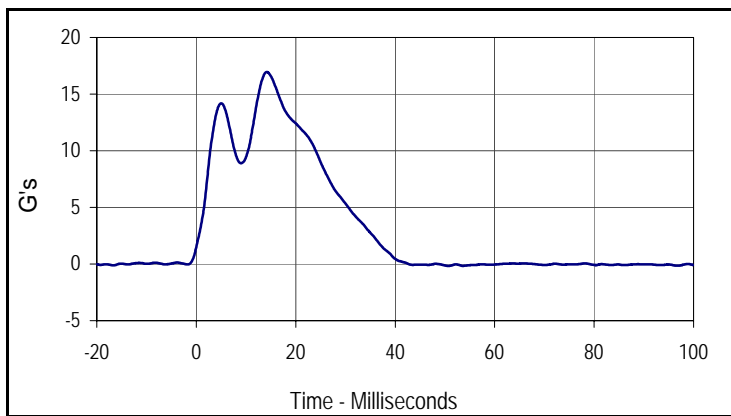
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	455	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.6	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.7	Pass
Impactor Velocity	m/s	4.20 to 4.40	4.34	Pass
Peak Shoulder Deflection	mm	28 to 37	29.3	Pass
Peak Lateral Spine Acceleration Y	G's	17 to 22	19.1	Pass
Peak Impactor Acceleration	G's	13 to 18	17.0	Pass
Overall Test Results			Pass	



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
29.3	18.5	0.0	-20.0



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
19.1	11.0	-8.8	39.5



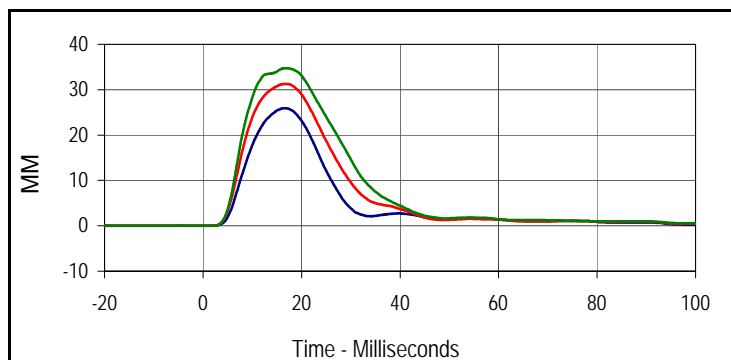
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
17.0	14.2	-0.2	50.7

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

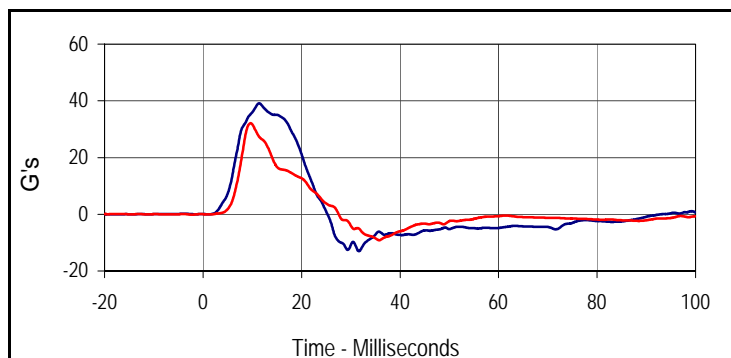
Test Date: 2/22/13
 Test I.D.: 307TWA052



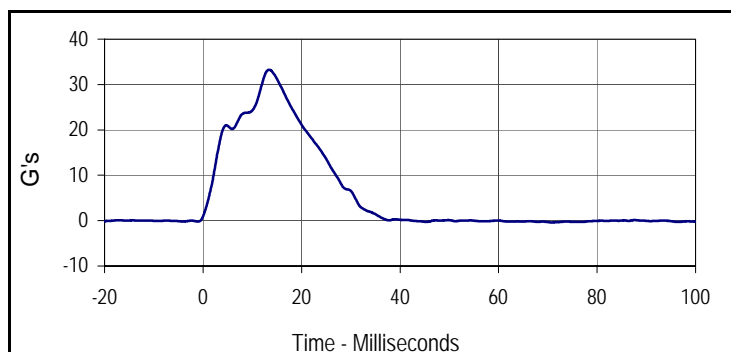
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	475	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.6	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.7	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.71	Pass
Peak Shoulder Deflection	mm	31 to 40	32.4	Pass
Peak Upper Thorax Rib Deflection	mm	25 to 32	25.9	Pass
Peak Middle Thorax Rib Deflection	mm	30 to 36	31.3	Pass
Peak Lower Thorax Rib Deflection	mm	32 to 38	34.7	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	39.1	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	32.1	Pass
Peak Impactor Acceleration	G's	30 to 36	33.3	Pass
Overall Test Results				Pass



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
25.9	16.6	0.0	-2.9
Middle Thorax Deflection			
Max	Time	Min	Time
31.3	16.8	0.0	-1.7
Lower Thorax Deflection			
Max	Time	Min	Time
34.7	16.4	0.0	-4.1



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
39.1	11.4	-13.0	31.6
Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
32.1	9.6	-9.1	35.8



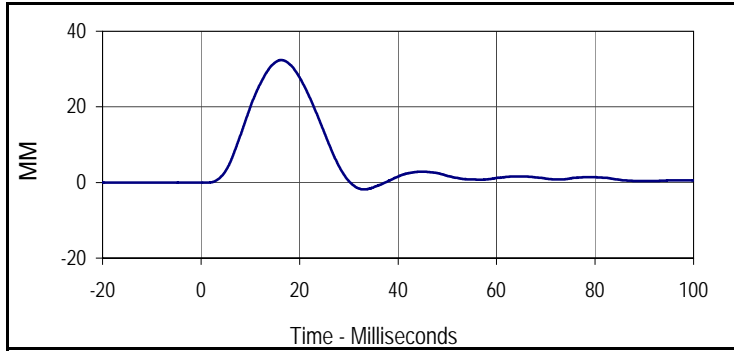
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
33.3	13.4	-0.4	70.8

Test Program: SID IIs Thorax with Arm Impact Test

ATD Serial No.: 307

Test Date: 2/22/13

Test I.D.: 307TWA052



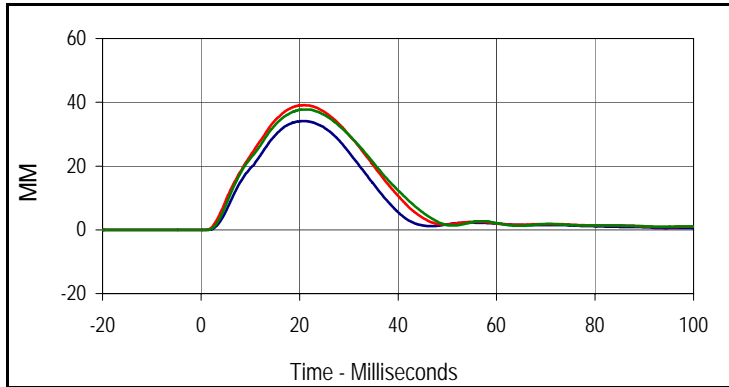
Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
007	FIL	600	MM
Max	Time	Min	Time
32.4	16.3	-1.8	33.0

Test Program: SID IIs Thorax without Arm Impact Test
 ATD Serial No.: 307

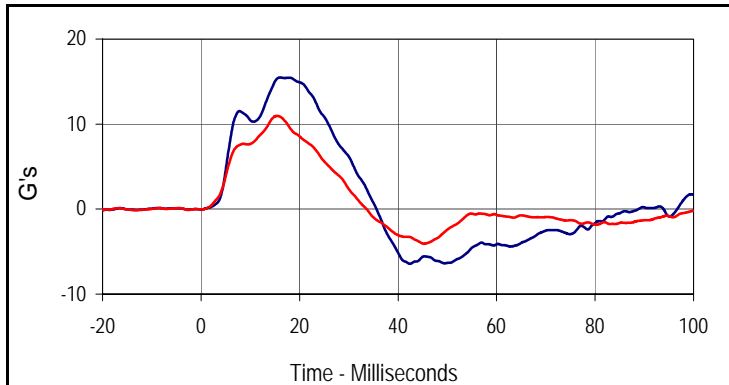
Test Date: 2/22/13
 Test I.D.: 307TWOA052



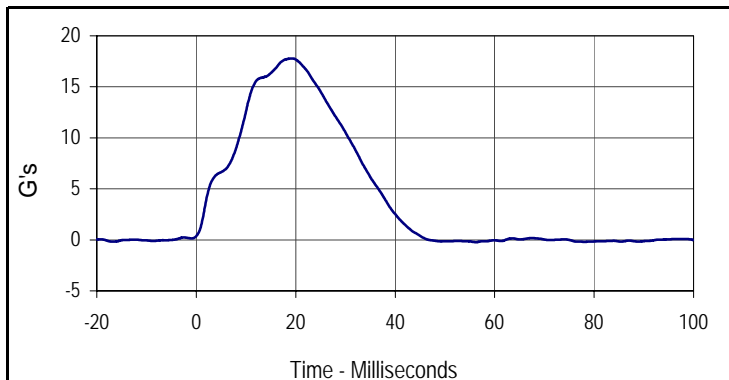
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	500	Pass
Temperature During Soak	Max	18.9 to 25.6	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.6	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.7	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.35	Pass
Peak Upper Thorax Rib Deflection	mm	32 to 40	34.1	Pass
Peak Middle Thorax Rib Deflection	mm	39 to 45	39.1	Pass
Peak Lower Thorax Rib Deflection	mm	35 to 43	37.8	Pass
Peak Upper Spine Y Acceleration	G's	13 to 17	15.5	Pass
Peak Lower Spine Y Acceleration	G's	7 to 11	11.0	Pass
Peak Impactor Acceleration	G's	14 to 18	17.8	Pass
Overall Test Results				Pass



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
34.1	20.8	0.0	-17.0
Middle Thorax Deflection			
Max	Time	Min	Time
39.1	20.9	0.0	-9.5
Lower Thorax Deflection			
Max	Time	Min	Time
37.8	21.2	0.0	-5.9



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.5	16.0	-6.4	42.4
Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
11.0	15.5	-4.1	45.3



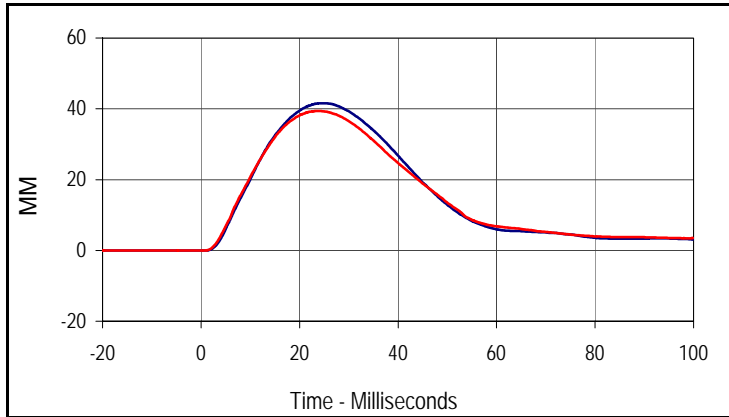
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
17.8	19.2	-0.2	56.3

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

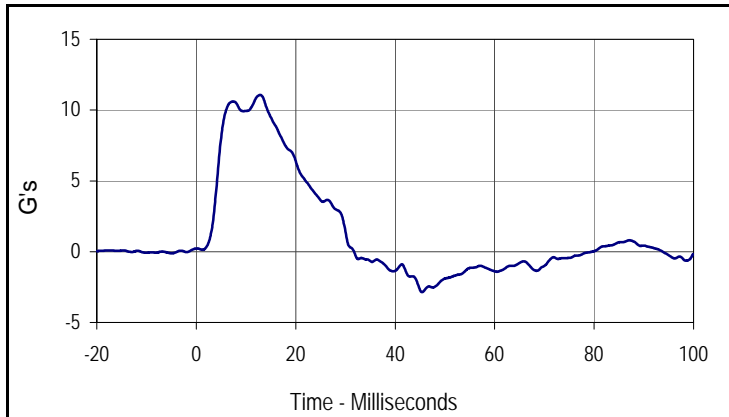
Test Date: 2/22/13
 Test I.D.: 307ABD052



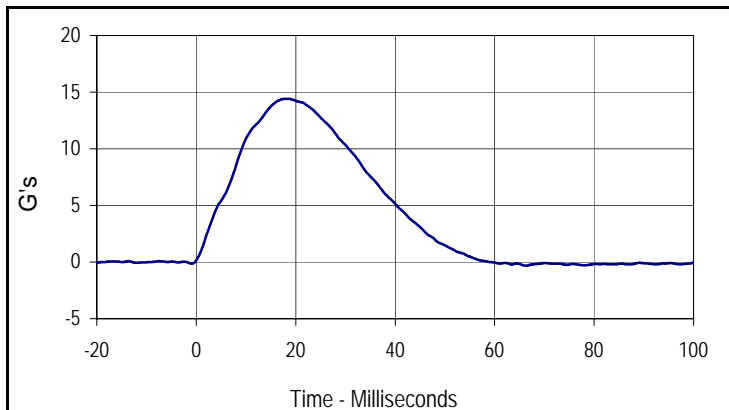
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	520	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.6	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.6	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.32	Pass
Peak Upper Abdominal Rib Deflection	mm	36 to 47	41.6	Pass
Peak Lower Abdominal Rib Deflection	mm	33 to 44	39.4	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	11.1	Pass
Peak Impactor Acceleration	G's	12 to 16	14.4	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
41.6	24.7	0.0	-13.6



Curve Description			
Lower Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
39.4	23.7	0.0	-17.0

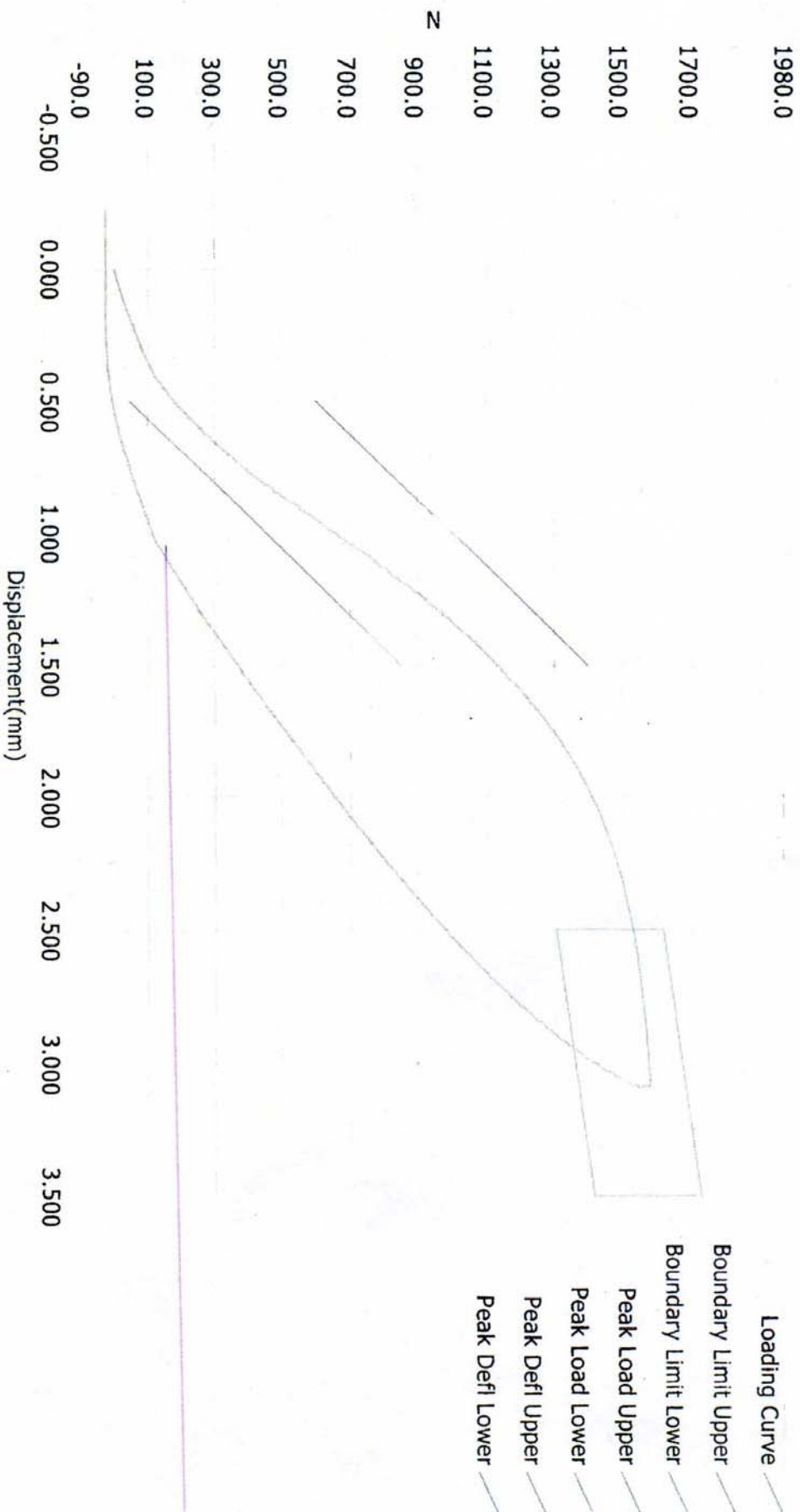


Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
11.1	12.8	-2.9	45.4

Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
14.4	18.0	-0.3	66.3

MD5308 PRE TEST

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>
46024		9/20/2011	10:24 PM
<u>Cert ID</u>	<u>ATD Serial Number</u>	<u>ATD Type</u>	
N/A		SIDIIs	

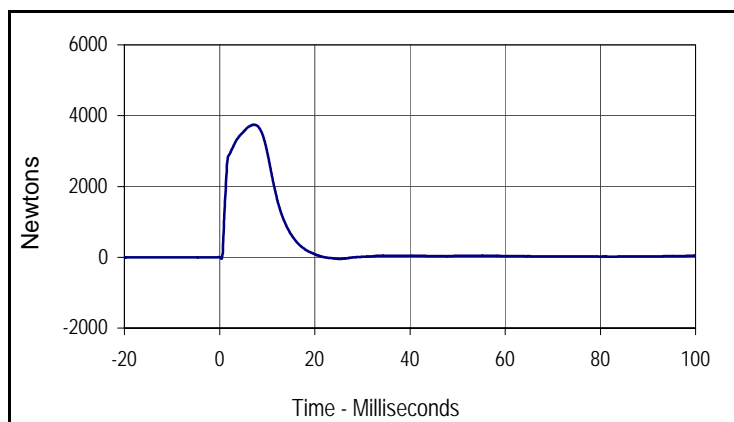
Current Date : 9/20/2011 Current Time : 22:25:24

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

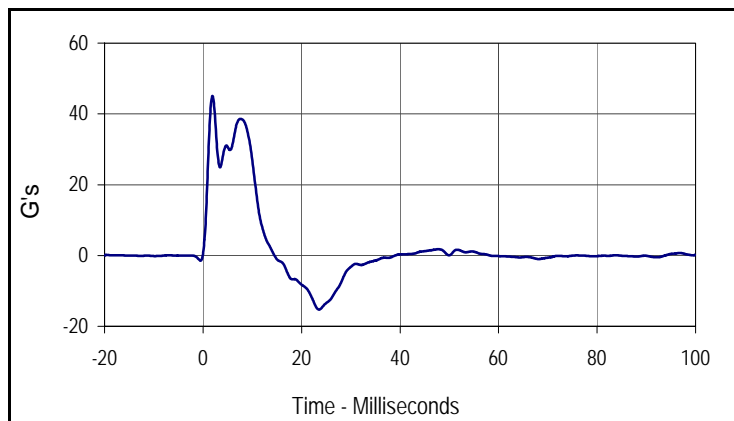
Test Date: 2/22/13
 Test I.D.: 307ACET052



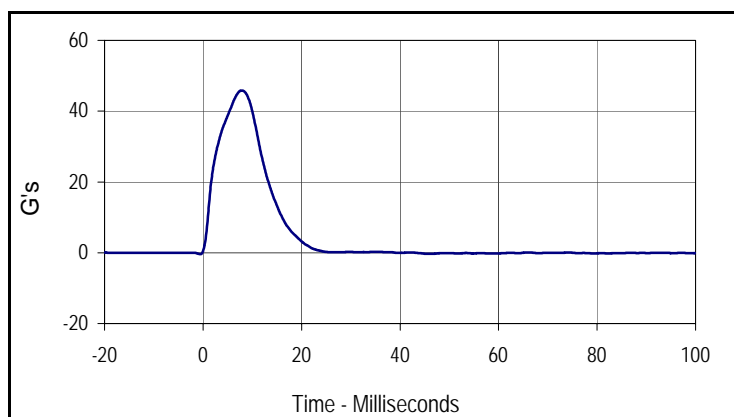
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	555	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.6	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.6	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.64	Pass
Peak Acetabulum Force Y	Newtons	3600 to 4300	3744.8	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	38.6	Pass
Peak Impactor Acceleration	G's	38 to 47	45.8	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Acetabulum Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3744.8	7.2	-45.4	25.2



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
45.1	1.9	-15.3	23.5



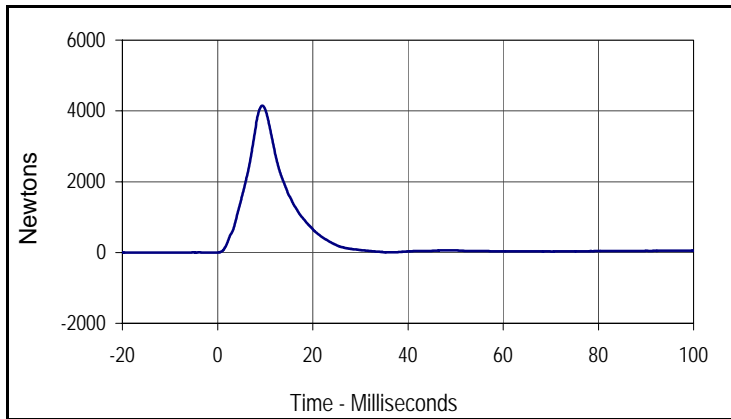
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
45.8	7.8	-0.4	-0.6

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

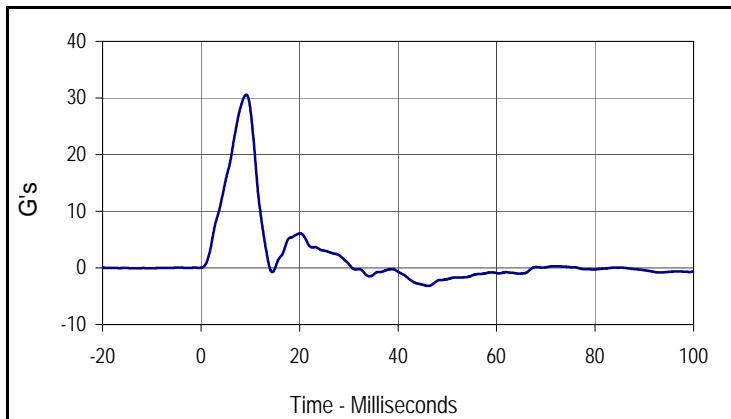
Test Date: 2/22/13
 Test I.D.: 307PL052



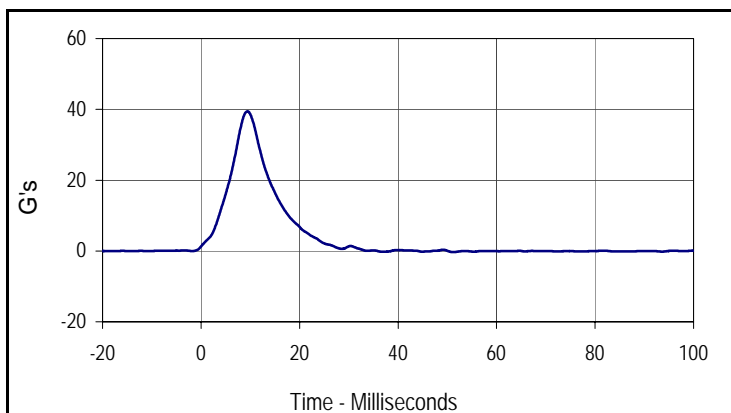
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	610	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.6	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.7	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.27	Pass
Peak Iliac Force	Newtons	4100 to 5100	4150.1	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	30.6	Pass
Peak Impactor Acceleration	G's	36 to 45	39.4	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Iliac Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4150.1	9.4	-2.3	-16.6



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
30.6	9.2	-3.2	46.1



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
39.4	9.4	-0.3	51.1

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

Test Program: ES2re External Measurements

Test Date: 3/4/13



ATD Serial No.: F035

Test I.D.: N/A

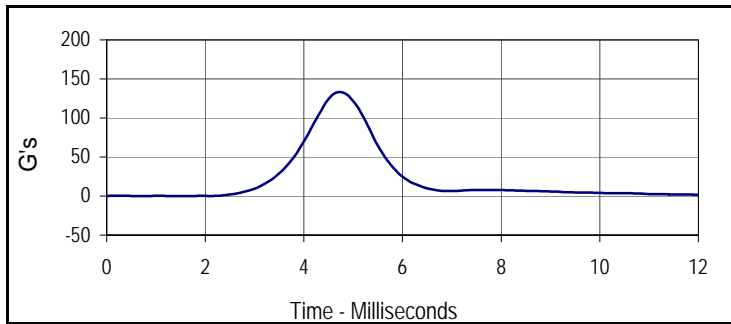
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	30.3	Pass
1 Sitting Height	mm	900 - 918	907	Pass
2 Seat to Shoulder Joint	mm	558 - 572	564	Pass
3 Seat to Lower Face of Thoracic Spine Box	mm	346 - 356	350	Pass
4 Seat to Hip Joint (Center of Bolt)	mm	97 - 103	100	Pass
5 Sole to Seat, Sitting	mm	333 - 451	389	Pass
6 Head Width	mm	152 - 158	155	Pass
7 Shoulder / Arm Width	mm	461 - 479	470	Pass
8 Thorax Width	mm	322 - 332	324	Pass
9 Abdomen Width	mm	273 - 287	280	Pass
10 Pelvis Lap Width	mm	359 - 373	365	Pass
11 Head Depth	mm	196 - 206	202	Pass
12 Thorax Depth	mm	262 - 272	269	Pass
13 Abdomen Width	mm	194 - 204	198	Pass
14 Pelvis Depth	mm	235 - 245	239	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	611	Pass
Overall Test Results				Pass

Test Program: ES2re Head Drop Test
 ATD Serial No.: F035

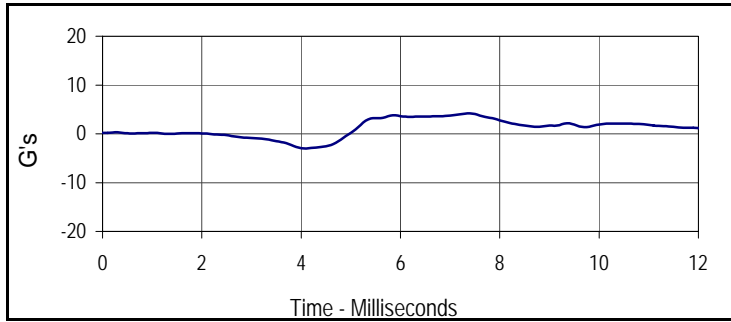
Test Date: 3/4/13
 Test I.D.: F035HD046



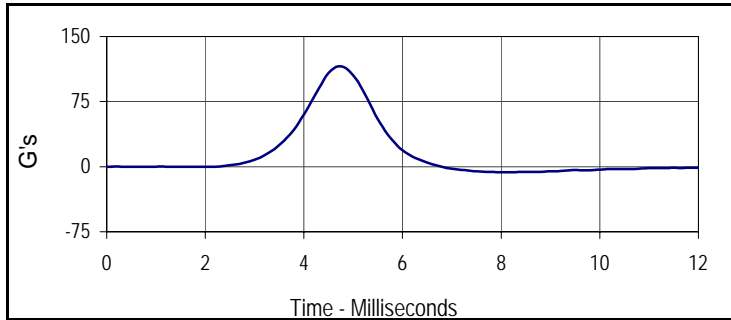
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	420	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.6	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.7	Pass
Peak Head Resultant Acceleration	G's	125 to 155	133.2	Pass
Peak Head X Acceleration	G's	≤15	4.2	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	5.9	Pass
Overall Test Results				Pass



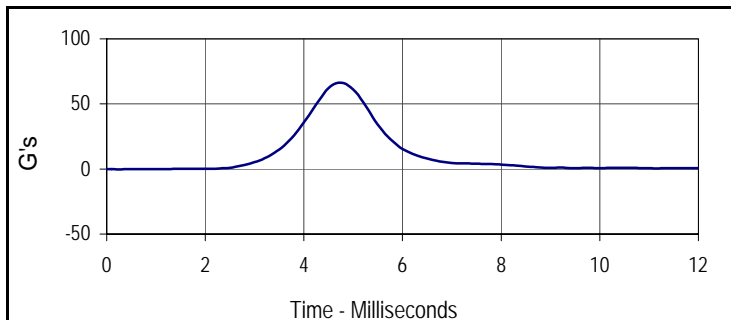
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
133.2	4.7	0.1	1.2



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
4.2	7.4	-3.0	4.1



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
115.5	4.7	-6.4	8.1



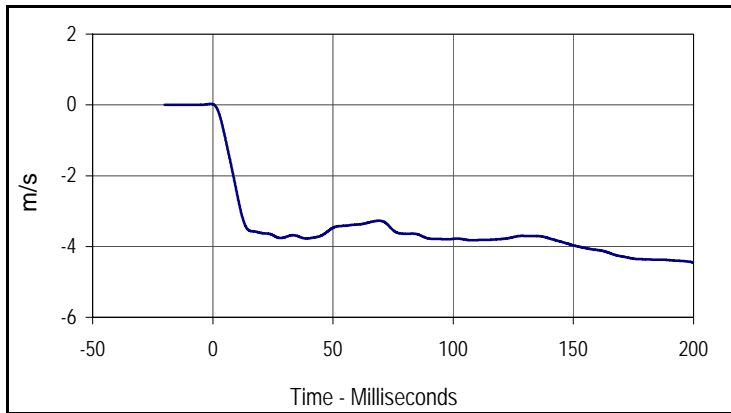
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
66.3	4.7	-0.2	0.3

Test Program: ES2re Neck Flexion Test
 ATD Serial No.: F035

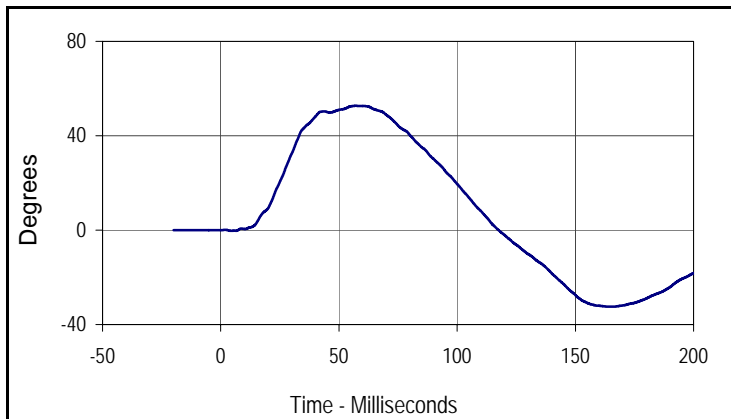
Test Date: 3/4/13
 Test I.D.: F035NB046



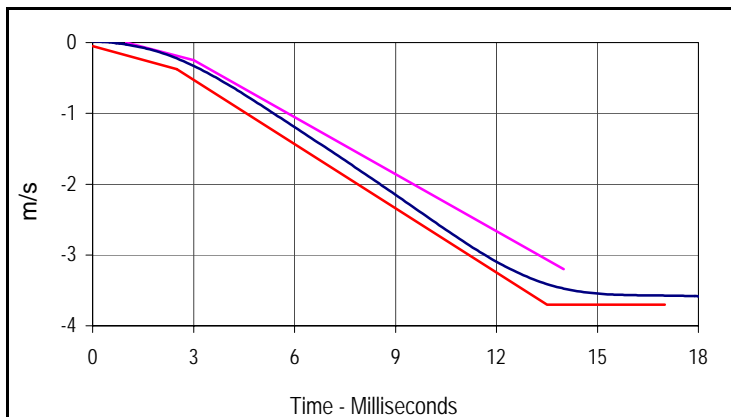
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	460	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.2	Pass
Pendulum Velocity	m/s	3.3 to 3.5	3.47	Pass
Headform Flexion	Max	49 to 59	52.7	Pass
	Time	54 to 66	57.0	Pass
Headform Flexion Decay (Peak to Zero)	msec	53 to 88	60.6	Pass
Overall Test Results				Pass



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.9	-4.4	200.0



Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	180	Degrees
Max	Time	Min	Time
52.7	57.0	-32.4	164.2



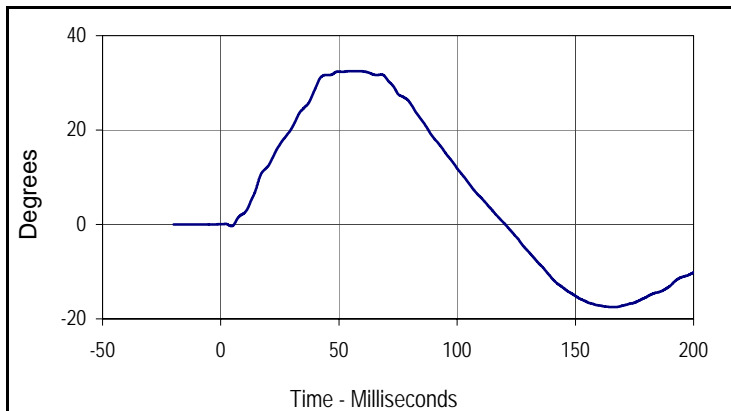
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.9	-4.4	200.0

Velocity Corridors

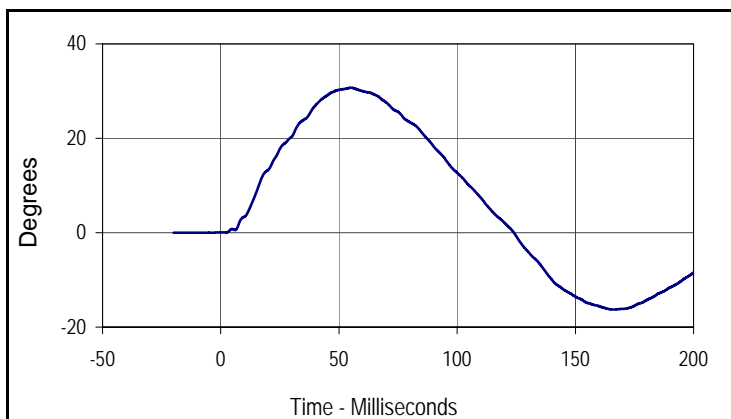
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.0	-0.03	2.5	-0.375
14.0	-3.20	13.5	-3.70
		17.0	-3.70

Test Program: ES2re Neck Flexion Test
 ATD Serial No.: F035

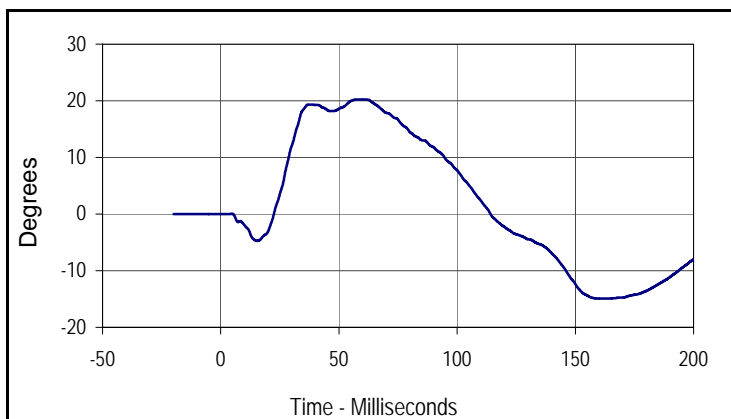
Test Date: 3/4/13
 Test I.D.: F035NB046



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
003	FIL	180	Degrees
Max	Time	Min	Time
32.5	55.6	-17.5	167.0



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
004	FIL	180	Degrees
Max	Time	Min	Time
30.7	55.1	-16.2	166.8



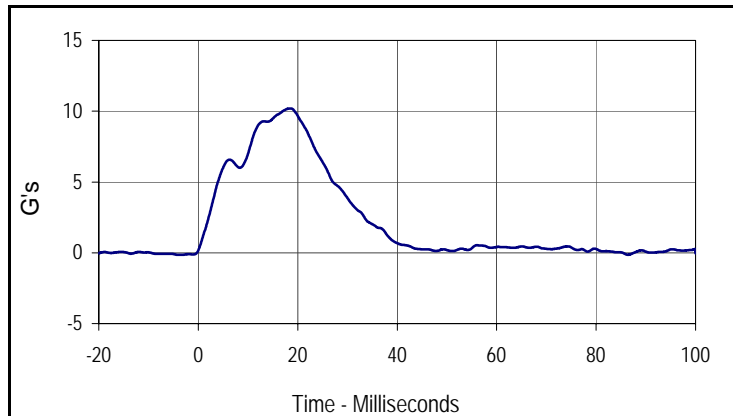
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
005	FIL	180	Degrees
Max	Time	Min	Time
20.2	59.9	-14.9	162.7

Test Program: ES2re Shoulder Impact Test
 ATD Serial No.: F035

Test Date: 3/4/13
 Test I.D.: F035SH046



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	495	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.2	Pass
Pendulum Speed	m/s	4.2 to 4.4	4.32	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	10.2	Pass
Overall Test Results				Pass



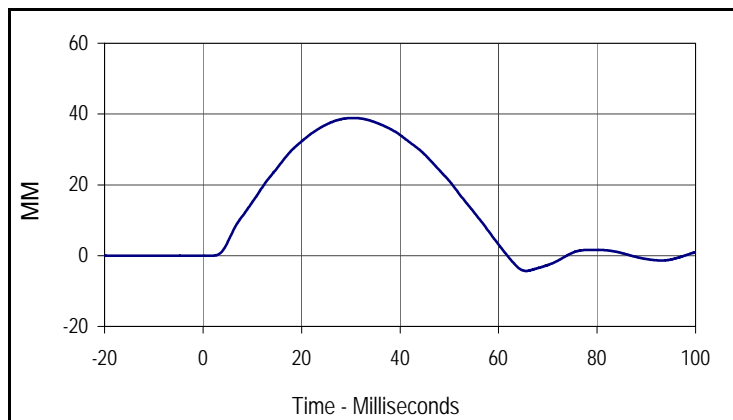
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
10.2	18.5	-0.1	-3.9

Test Program: ES2re Thorax - Rib Drop Test
 ATD Serial No.: F035 Rib # 1

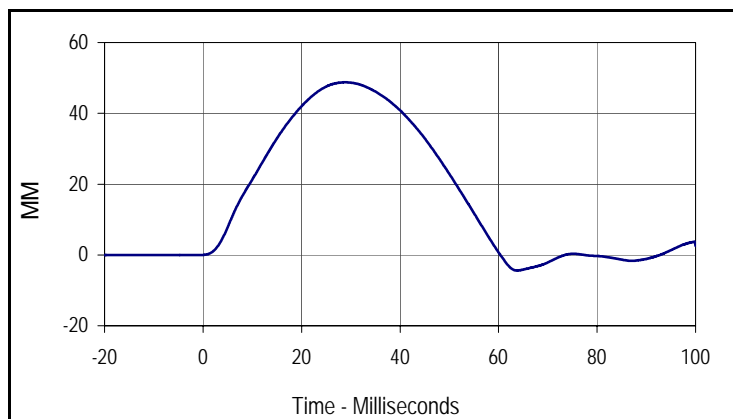
Test Date: 3/4/13
 Test I.D.: F035RB1046



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	520	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.2	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	38.9	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	48.8	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
38.9	30.5	-4.3	65.6



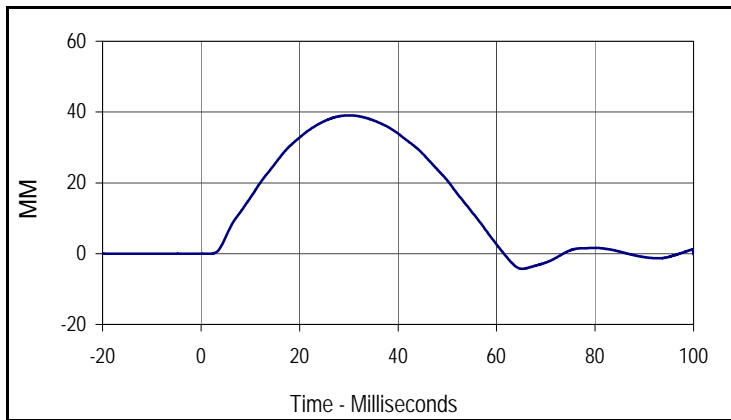
Curve Description			
Upper Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
48.8	28.9	-4.4	63.7

Test Program: ES2re Thorax - Rib Drop Test
 ATD Serial No.: F035 Rib # 2

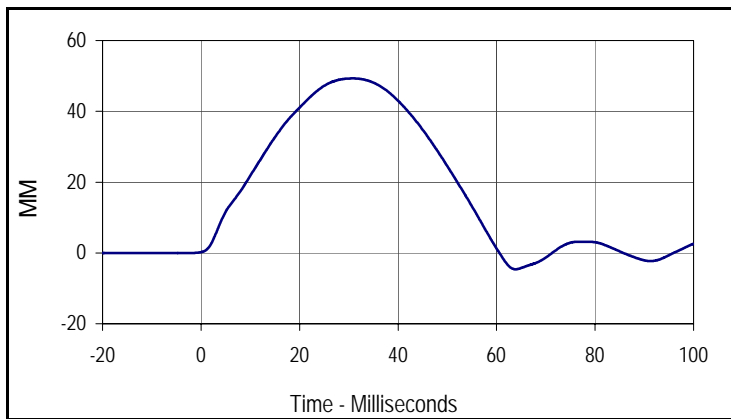
Test Date: 3/4/13
 Test I.D.: F035RB2046



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	535	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.2	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	39.1	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	49.3	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
39.1	30.1	-4.3	65.2



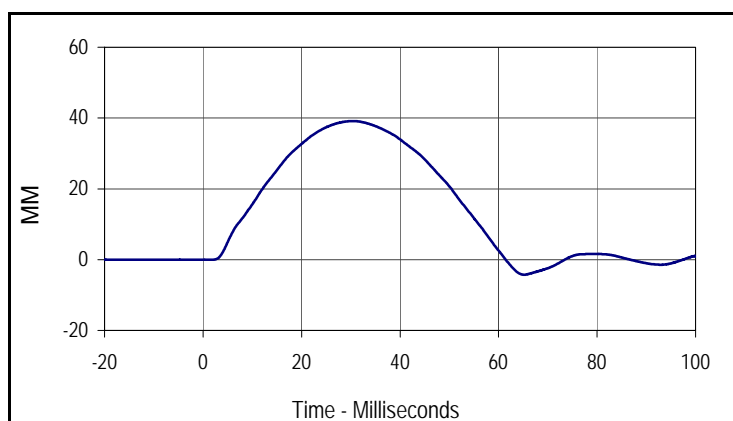
Curve Description			
Middle Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
49.3	30.8	-4.6	63.9

Test Program: ES2re Thorax - Rib Drop Test
 ATD Serial No.: F035 Rib # 3

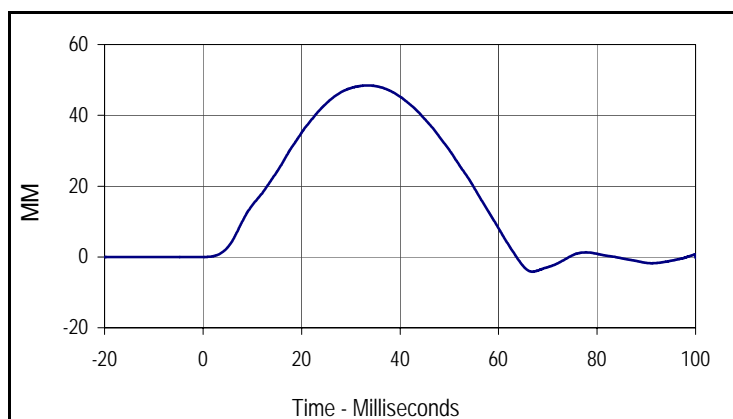
Test Date: 3/4/13
 Test I.D.: F035RB3046



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	550	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.3	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	39.1	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	48.4	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
39.1	30.5	-4.3	65.2



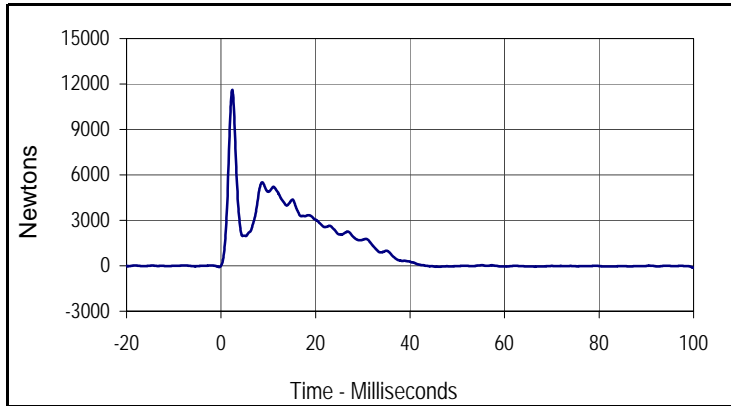
Curve Description			
Lower Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
48.4	33.4	-4.2	66.9

Test Program: ES2re Thorax - Full Body Impact Test
 ATD Serial No.: F035

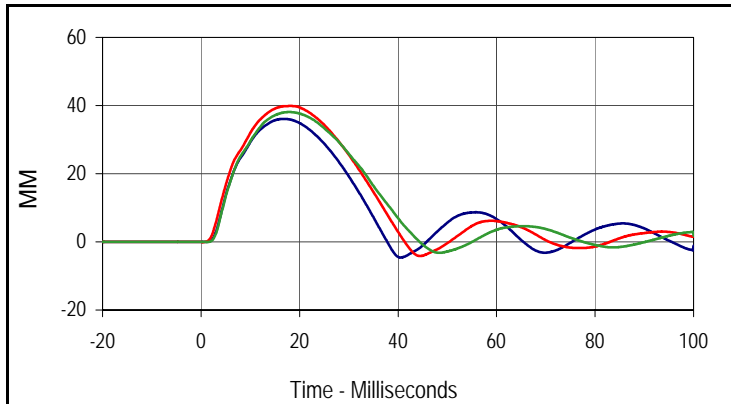
Test Date: 3/4/13
 Test I.D.: F035TH046



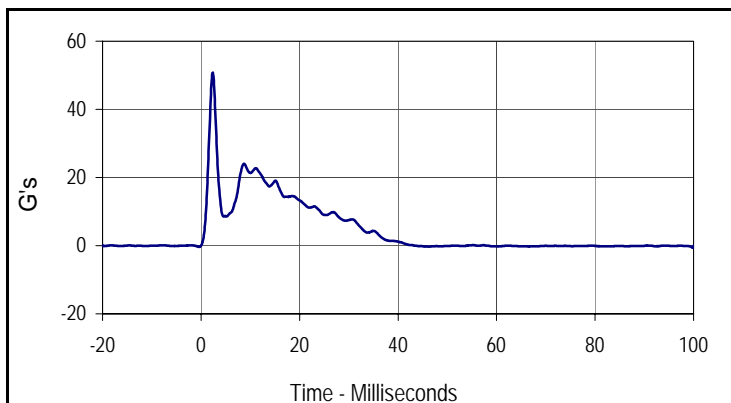
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	590	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.3	Pass
Peak Impactor Velocity	m/s	5.4 to 5.6	5.46	Pass
Peak Impactor Force	N	5100 to 6200	5505.6	Pass
	msec	> 6.0 msec	8.7	Pass
Peak Upper Rib Deflection	mm	34 to 41	36.1	Pass
Peak Middle Rib Deflection	mm	37 to 45	39.9	Pass
Peak Lower Rib Deflection	mm	37 to 44	38.1	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
11628.9	2.4	-133.5	99.9



Curve Description			
Upper, Middle, Lower Rib Deflections			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max (Upper)	Time	Min (Upper)	Time
36.1	16.8	-4.6	40.6
Max (Middle)	Time	Min (Middle)	Time
39.9	18.3	-4.2	44.5
Max (Lower)	Time	Min (Lower)	Time
38.1	17.9	-3.2	48.4



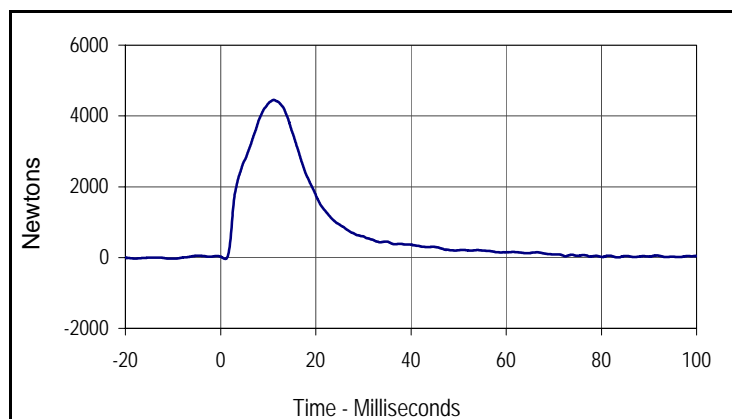
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
50.8	2.4	-0.6	99.9

Test Program: ES2re Abdomen Impact Test
 ATD Serial No.: F035

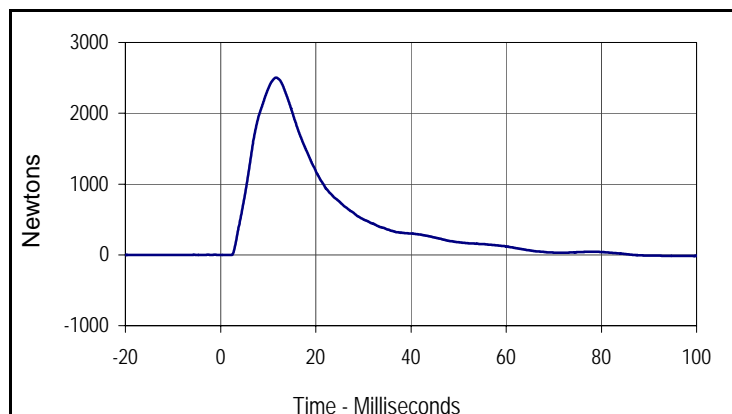
Test Date: 3/4/13
 Test I.D.: F035ABD046



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	610	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.3	Pass
Probe Velocity	m/s	3.9 to 4.1	3.95	Pass
Peak Impactor Force	N	4000 to 4800	4452.5	Pass
	msec	10.6 to 13.0	11.1	Pass
Sum of Abdominal Forces	N	2200 to 2700	2503.6	Pass
	msec	10.0 to 12.3	11.7	Pass
Overall Test Results				Pass



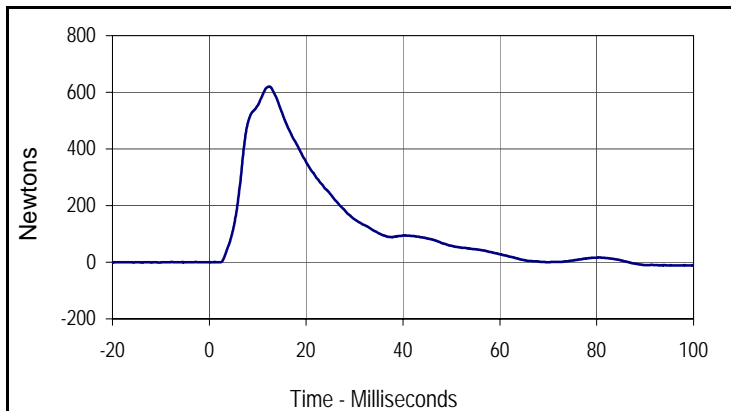
Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
4452.5	11.1	-39.3	1.0



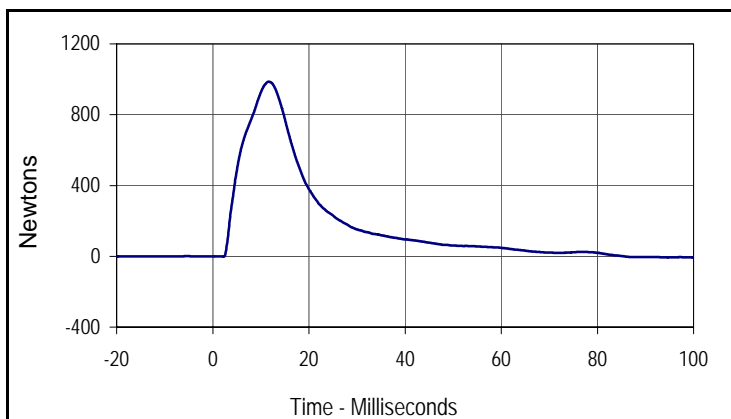
Curve Description			
Abdomen Sum Resultant			
Plot No.	Type	SAE Class	Units
002	RES	600	Newtons
Max	Time	Min	Time
2503.6	11.7	-17.0	99.4

Test Program: ES2re Abdomen Impact Test
 ATD Serial No.: F035

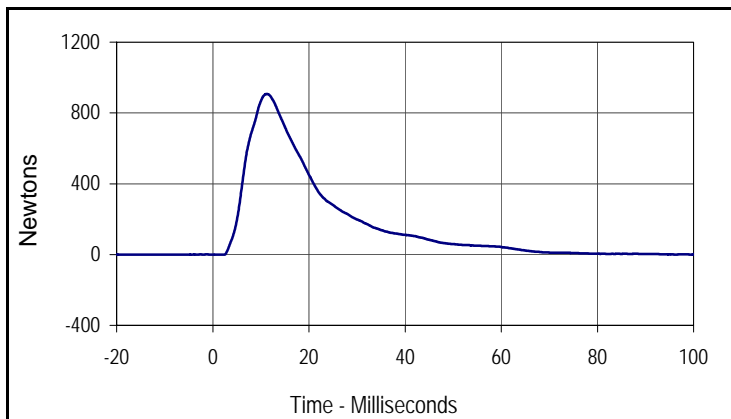
Test Date: 3/4/13
 Test I.D.: F035ABD046



Curve Description			
Front Abdomen Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
620.4	12.4	-11.7	98.7



Curve Description			
Middle Abdomen Force			
Plot No.	Type	SAE Class	Units
004	FIL	600	Newtons
Max	Time	Min	Time
986.6	11.6	-6.3	94.6



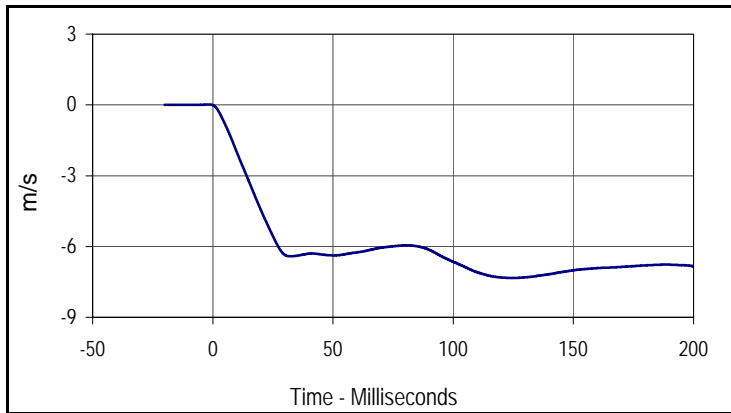
Curve Description			
Rear Abdomen Force			
Plot No.	Type	SAE Class	Units
005	FIL	600	Newtons
Max	Time	Min	Time
907.3	11.2	-1.1	2.3

Test Program: ES2re Lumbar Flexion Test
 ATD Serial No.: F035

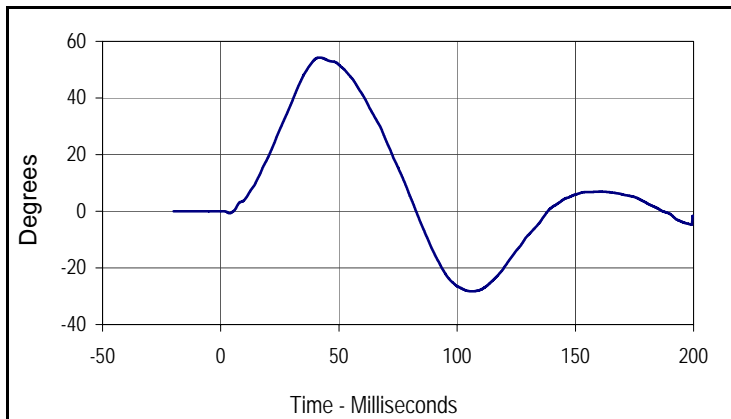
Test Date: 3/4/13
 Test I.D.: F035LB046



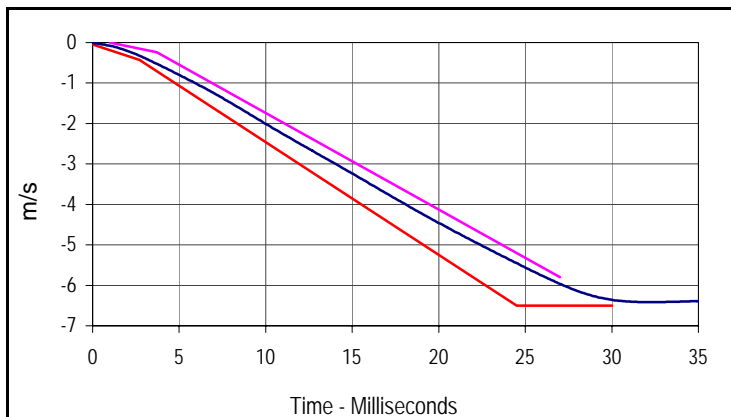
Tested Parameter	Units	Specification	Result	Pass/Fail
Lumbar Spine Assembly Soak Time	Minutes	≥240	665	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.2	Pass
Pendulum Velocity	m/s	5.95 to 6.15	5.97	Pass
Headform Rotation	Max	45 to 55	54.3	Pass
	Time	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 Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.0	-7.3	125.4



Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	180	Degrees
Max	Time	Min	Time
54.3	42.3	-28.3	106.8



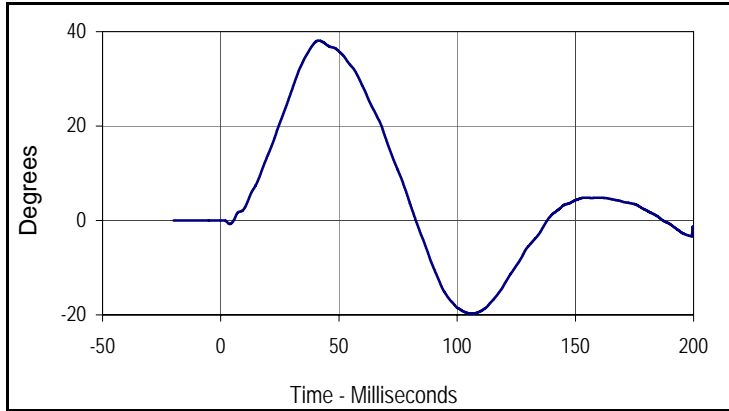
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.0	-7.3	125.4

Velocity Corridors

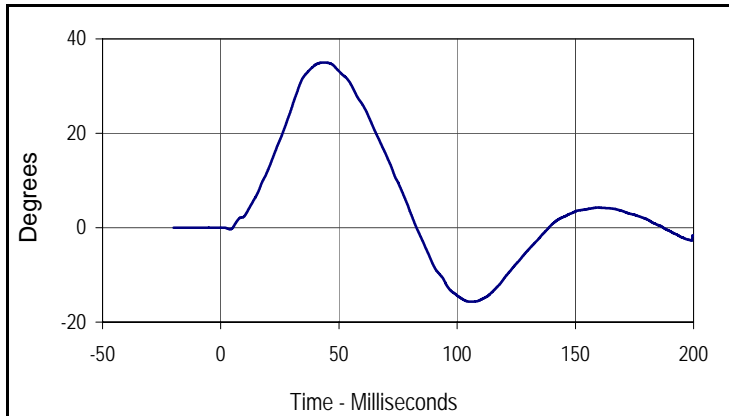
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.7	-0.24	2.7	-0.425
27.0	-5.80	24.5	-6.50
		30.0	-6.50

Test Program: ES2re Lumbar Flexion Test
 ATD Serial No.: F035

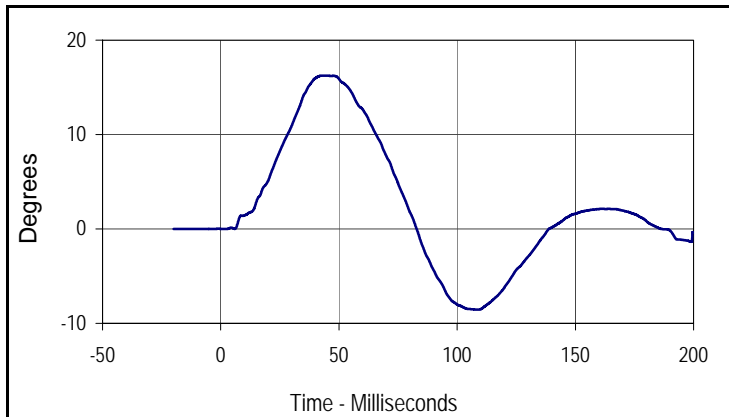
Test Date: 3/4/13
 Test I.D.: F035LB046



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
003	FIL	180	Degrees
Max	Time	Min	Time
38.1	42.0	-19.8	106.6



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
004	FIL	180	Degrees
Max	Time	Min	Time
35.0	44.3	-15.7	106.4



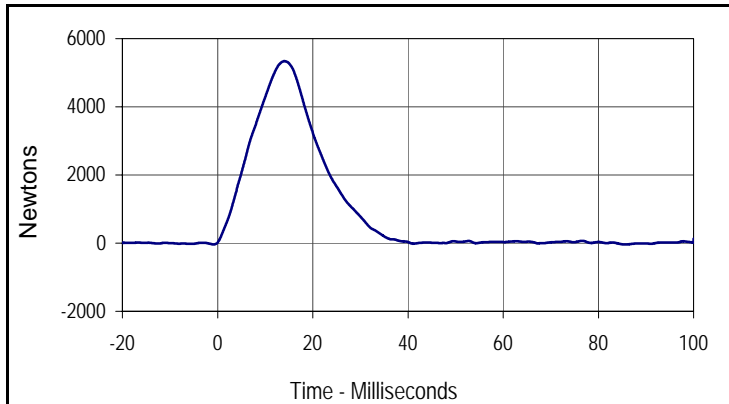
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
005	FIL	180	Degrees
Max	Time	Min	Time
16.3	43.7	-8.6	109.7

Test Program: ES2re Pelvis Impact Test
 ATD Serial No.: F035

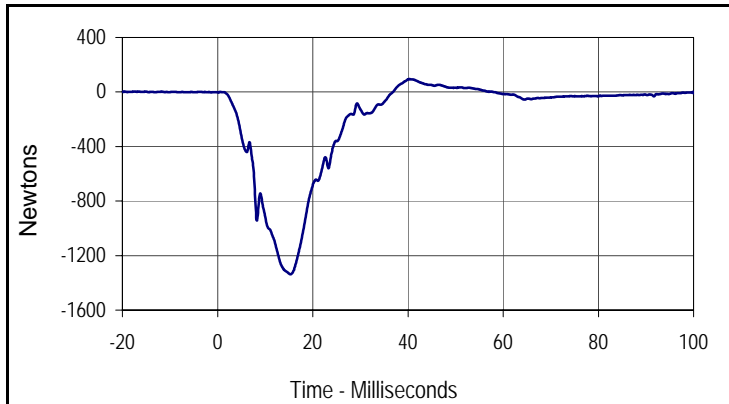
Test Date: 3/4/13
 Test I.D.: F035PL046



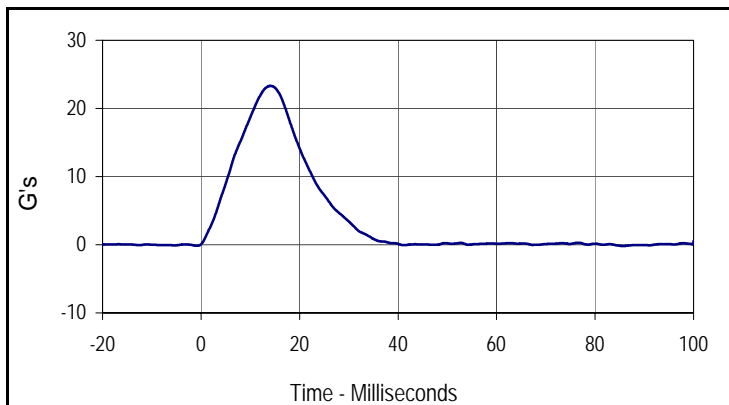
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	725	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.2	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.32	Pass
Peak Impactor Force	N	4700 to 5400	5339.7	Pass
	msec	11.8 to 16.1	14	Pass
Peak Pubic Symphysis Load	N	-1230 to -1590	-1337.1	Pass
	msec	12.2 to 17.0	15.3	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
5339.7	14.0	-40.2	85.8



Curve Description			
Pubic Symphysis Force Y			
Plot No.	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
93.8	40.3	-1337.1	15.3



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
23.3	14.0	-0.2	85.8

Test Program: SID IIs External Measurements

Test Date: 3/5/13



ATD Serial No.: 307

Test I.D.: N/A

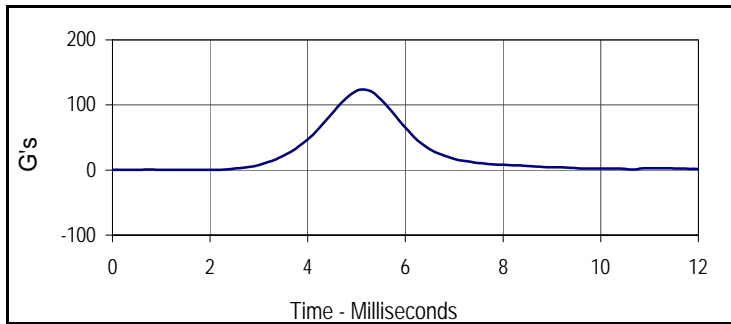
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A Sitting Height	mm	772 - 788	778	Pass
B Shoulder Pivot Height	mm	437 - 453	443	Pass
C H-Point Height	mm	79 - 89	85	Pass
D H-Point from Seatback	mm	141 - 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

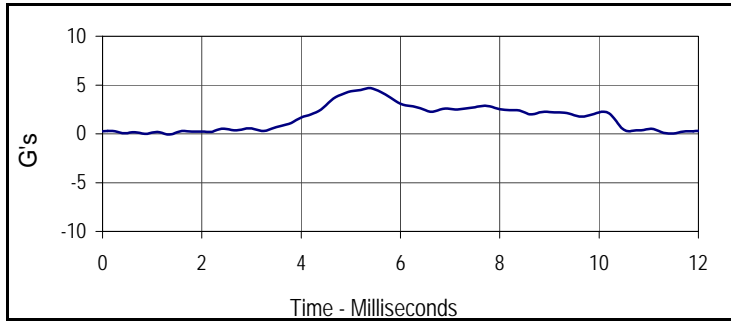
Test Date: 3/5/13
 Test I.D.: 307HD053



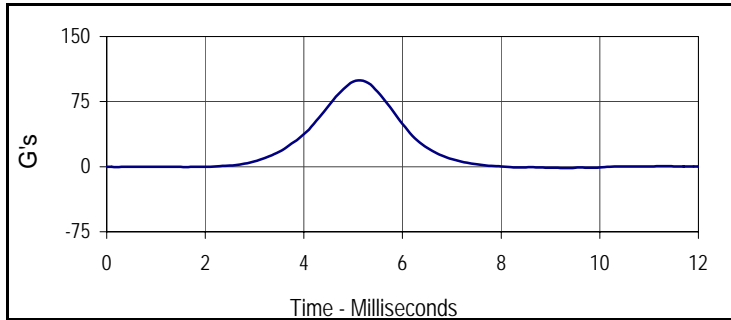
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	355	Pass
Temperature During Soak	Max	18.9 to 25.6	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.6	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.2	Pass
Peak Head Resultant Acceleration	G's	115 to 137	123.9	Pass
Peak Head X Acceleration	G's	<15	4.7	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	3.6	Pass
Overall Test Results				Pass



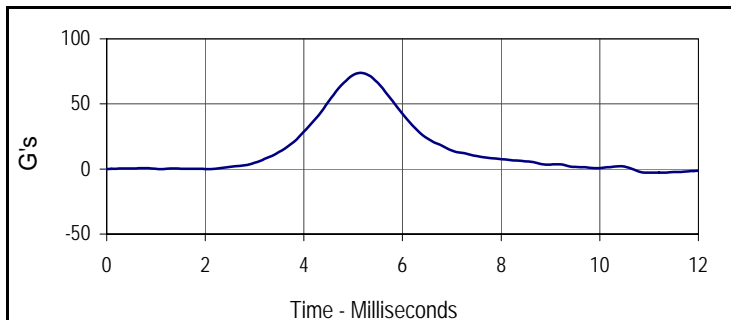
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
123.9	5.1	0.2	2.1



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
4.7	5.4	-0.1	1.3



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
99.6	5.1	-1.5	9.3



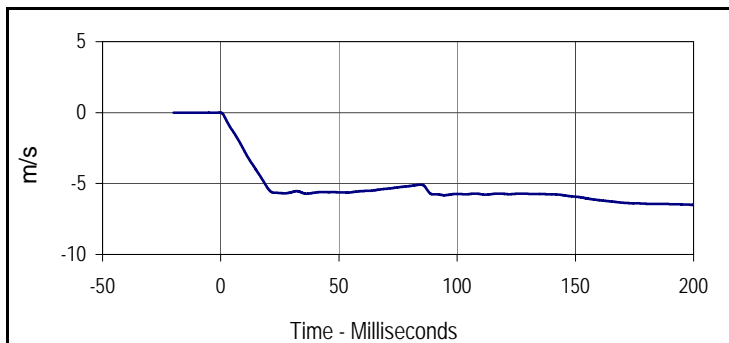
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
73.7	5.2	-2.8	11.0

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

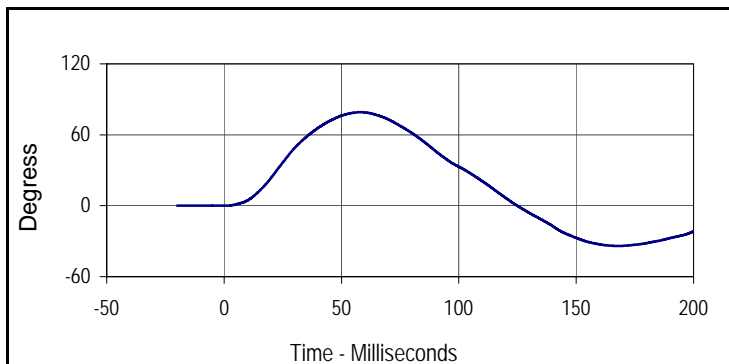
Test Date: 3/5/13
 Test I.D.: 307NB053



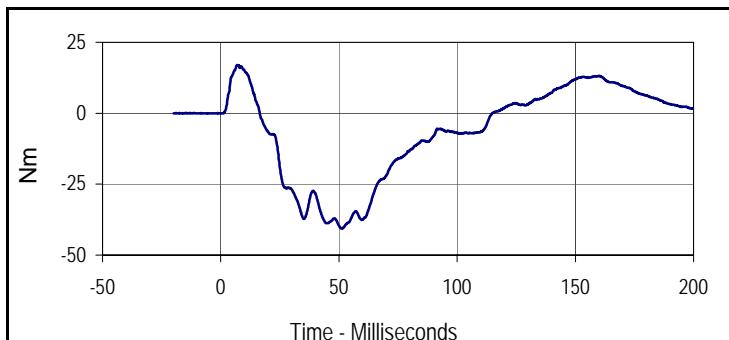
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	410	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass	
	Min		20.8	Pass	
Humidity During Soak	Max	10.0 to 70.0	30.6	Pass	
	Min		28.6	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	30.2	Pass	
Pendulum Velocity	m/s	5.51 to 5.63	5.54	Pass	
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.71	Pass
	15 msec	m/s	-3.30 to -4.10	-4.05	Pass
	20 msec	m/s	-4.40 to -5.40	-5.36	Pass
	25 msec	m/s	-5.40 to -6.10	-5.67	Pass
	25-100 msec	m/s	-5.50 to -6.20	-5.82	Pass
D-Plane Rotation	Max	Degrees	71 to 81	79.1	Pass
	Time	msec	50 to 70	58.1	Pass
Peak Occipital Condyle Moment	Nm	-36 to -44	-40.7	Pass	
Decaying Moment Time to Cross 0 Nm	msec	102 to 126	115.0	Pass	
Overall Test Results			Pass	Pass	



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.4	-6.5	200.0



Curve Description			
Maximum Translation Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degree
Max	Time	Min	Time
79.1	58.1	-34.0	167.8



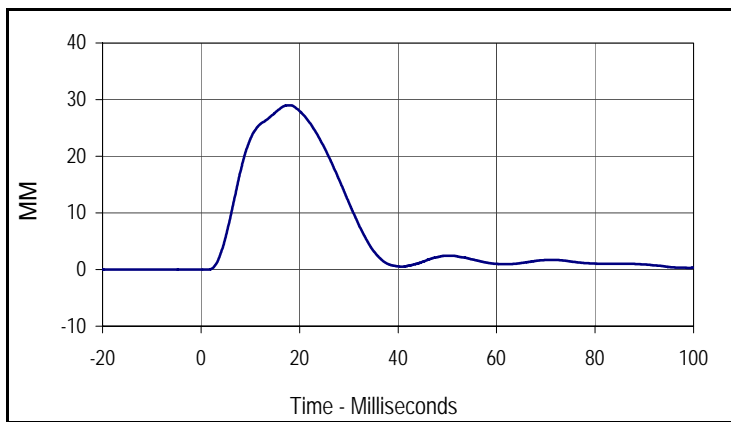
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
17.0	7.0	-40.7	51.2

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

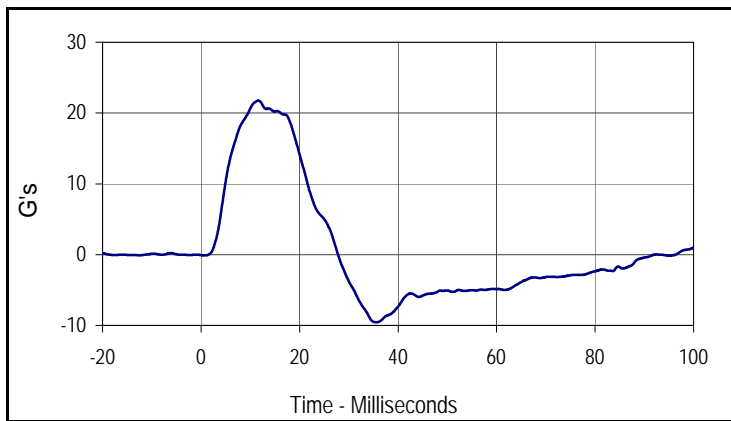
Test Date: 3/5/13
 Test I.D.: 307SH053



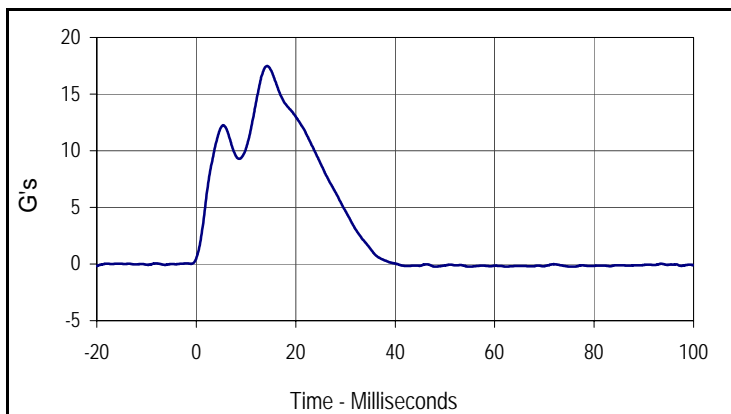
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	445	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.6	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.2	Pass
Impactor Velocity	m/s	4.20 to 4.40	4.32	Pass
Peak Shoulder Deflection	mm	28 to 37	29.0	Pass
Peak Lateral Spine Acceleration Y	G's	17 to 22	21.8	Pass
Peak Impactor Acceleration	G's	13 to 18	17.5	Pass
Overall Test Results			Pass	Pass



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
29.0	17.6	0.0	-6.1



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
21.8	11.6	-9.6	35.5



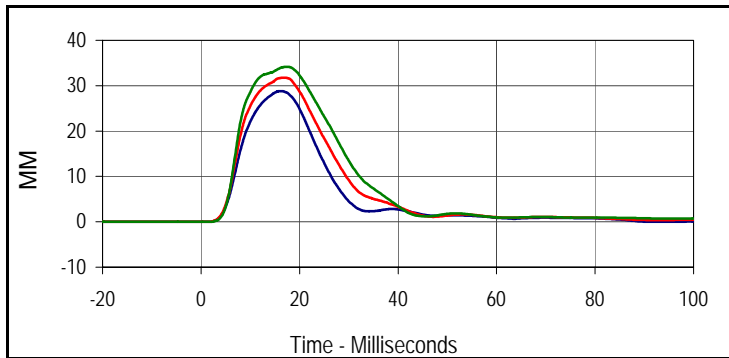
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
17.5	14.2	-0.2	75.9

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

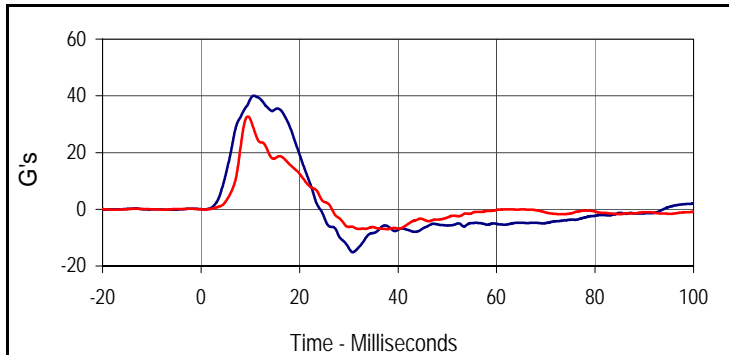
Test Date: 3/5/13
 Test I.D.: 307TWA053



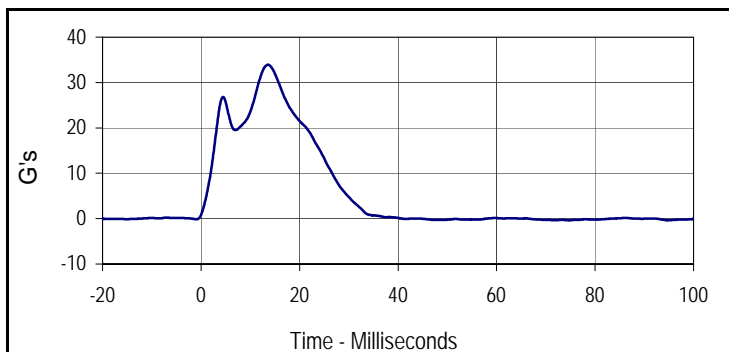
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	465	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.6	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.3	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.65	Pass
Peak Shoulder Deflection	mm	31 to 40	36.4	Pass
Peak Upper Thorax Rib Deflection	mm	25 to 32	28.8	Pass
Peak Middle Thorax Rib Deflection	mm	30 to 36	31.8	Pass
Peak Lower Thorax Rib Deflection	mm	32 to 38	34.2	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	40.0	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	32.7	Pass
Peak Impactor Acceleration	G's	30 to 36	33.9	Pass
Overall Test Results				Pass



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
28.8	16.2	0.0	-13.5
Middle Thorax Deflection			
Max	Time	Min	Time
31.8	16.6	0.0	-14.5
Lower Thorax Deflection			
Max	Time	Min	Time
34.2	17.4	0.0	-13.8



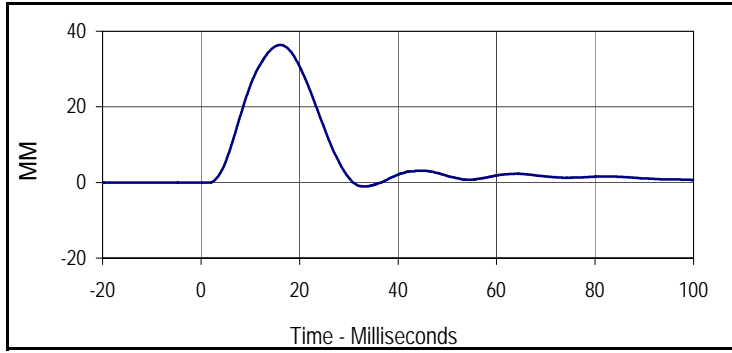
Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
40.0	10.7	-15.1	30.8
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
32.7	9.5	-7.0	37.8



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
33.9	13.6	-0.4	74.7

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

Test Date: 3/5/13
 Test I.D.: 307TWA053



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
007	FIL	600	MM
Max	Time	Min	Time
36.4	16.2	-1.0	33.3

Test Program: SID IIs Thorax without Arm Impact Test

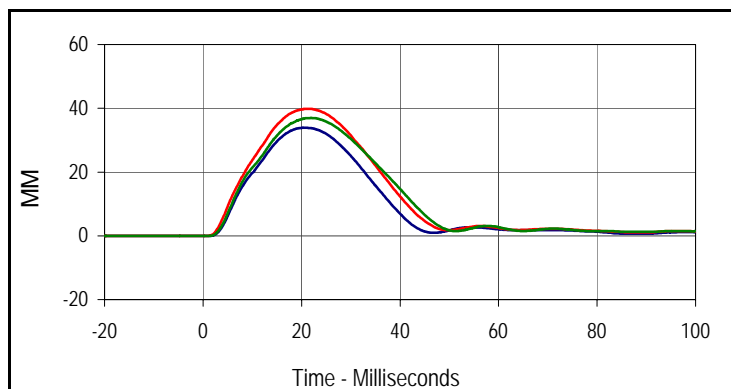
Test Date: 3/5/13



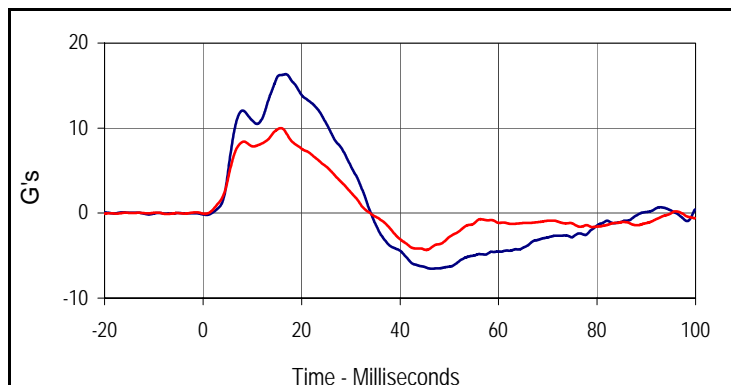
ATD Serial No.: 307

Test I.D.: 307TWOA053

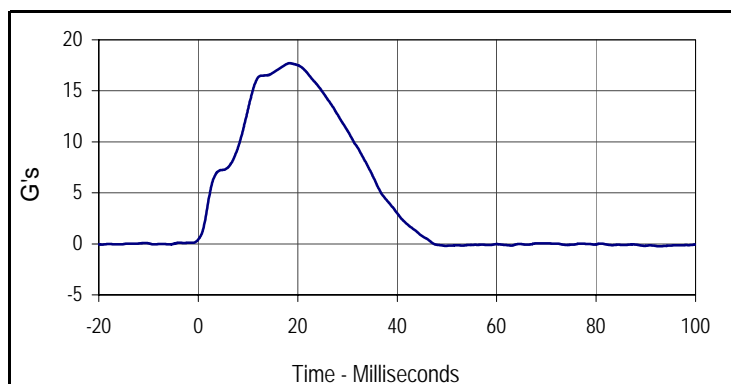
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	490	Pass
Temperature During Soak	Max	18.9 to 25.6	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.6	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.3	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.32	Pass
Peak Upper Thorax Rib Deflection	mm	32 to 40	33.9	Pass
Peak Middle Thorax Rib Deflection	mm	39 to 45	39.9	Pass
Peak Lower Thorax Rib Deflection	mm	35 to 43	37.0	Pass
Peak Upper Spine Y Acceleration	G's	13 to 17	16.3	Pass
Peak Lower Spine Y Acceleration	G's	7 to 11	10.0	Pass
Peak Impactor Acceleration	G's	14 to 18	17.7	Pass
Overall Test Results				Pass



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
33.9	20.6	0.0	-9.3
Middle Thorax Deflection			
Max	Time	Min	Time
39.9	21.2	0.0	-9.9
Lower Thorax Deflection			
Max	Time	Min	Time
37.0	22.0	0.0	-16.3



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
16.3	16.8	-6.5	46.5
Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
10.0	15.8	-4.3	45.3



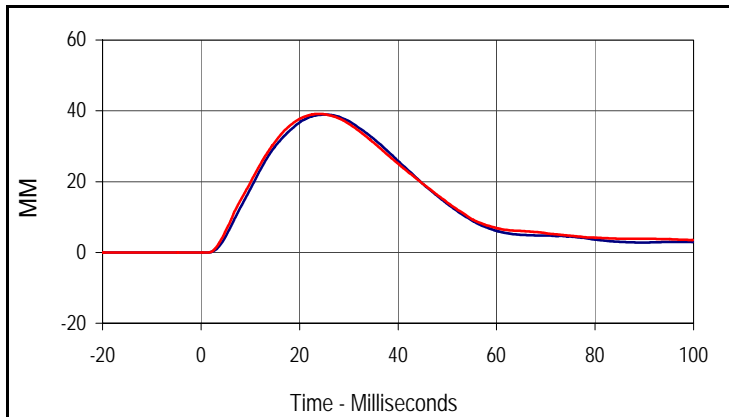
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
17.7	18.4	-0.2	92.7

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

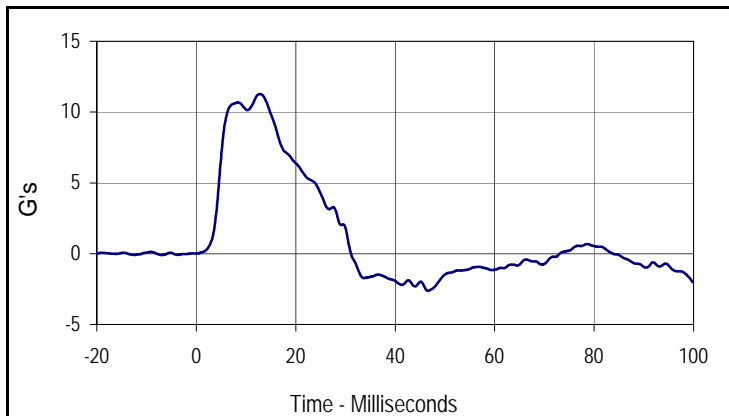
Test Date: 3/5/13
 Test I.D.: 307ABD053



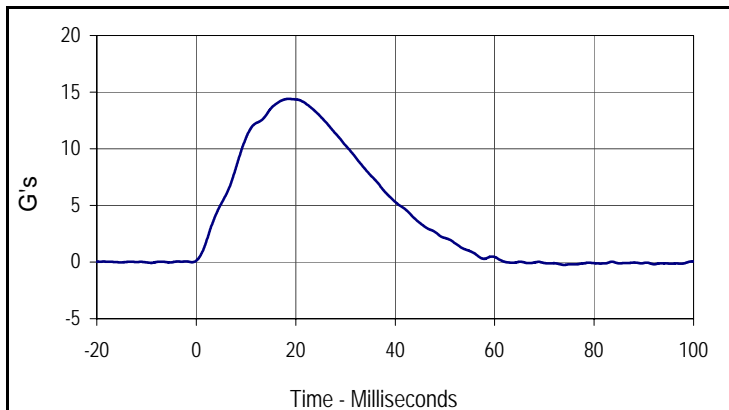
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	510	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.6	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.3	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.32	Pass
Peak Upper Abdominal Rib Deflection	mm	36 to 47	38.9	Pass
Peak Lower Abdominal Rib Deflection	mm	33 to 44	39.1	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	11.3	Pass
Peak Impactor Acceleration	G's	12 to 16	14.4	Pass
Overall Test Results				Pass



Curve Description			
Upper Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
38.9	25.0	0.0	-20.0
Curve Description			
Lower Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
39.1	23.7	0.0	-0.3



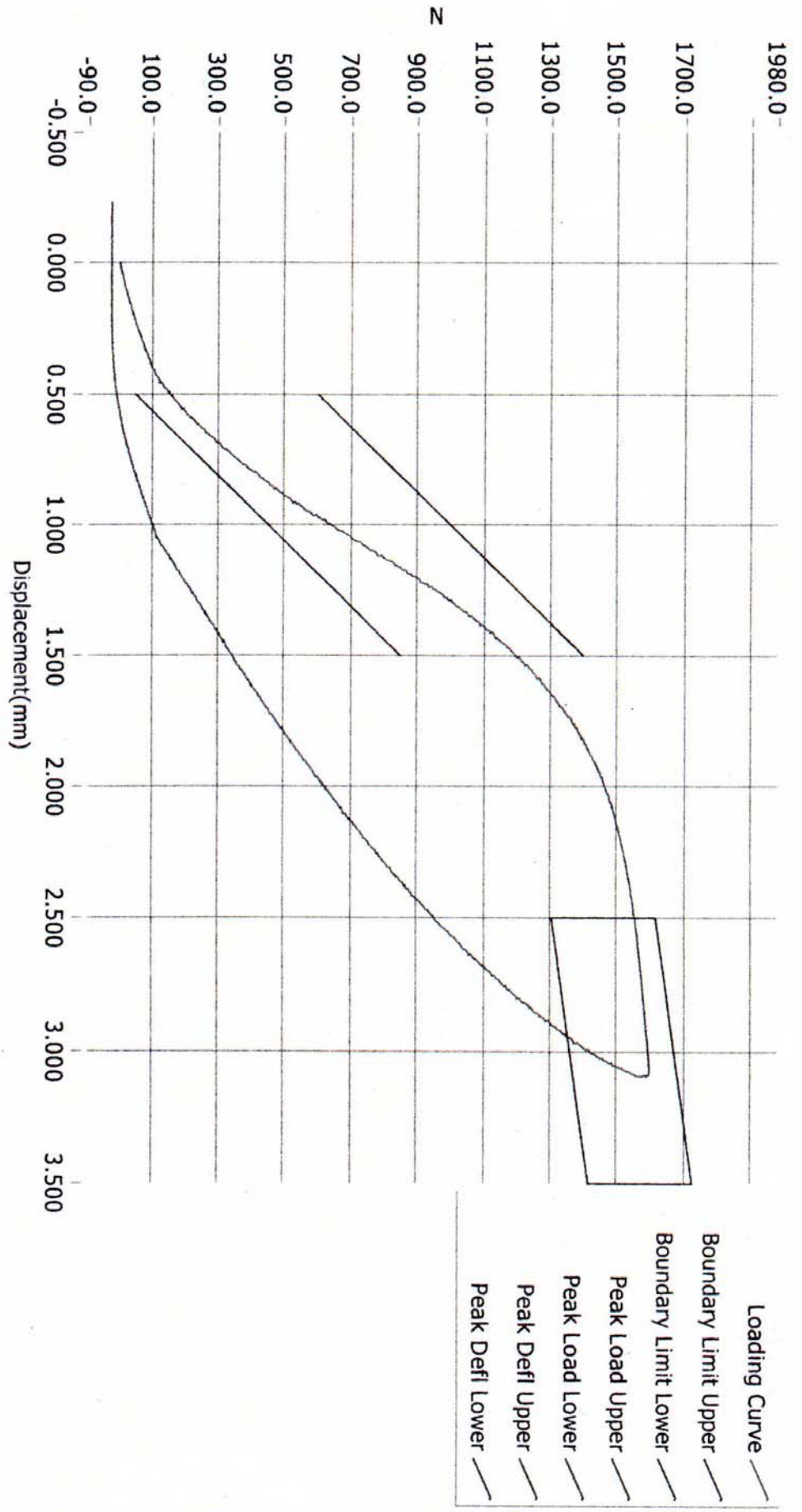
Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
11.3	12.8	-2.6	46.6



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
14.4	18.5	-0.3	74.0

MD5308 POST TEST

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>
	48945	12/6/2011	8:24 PM
<u>Cert ID</u>	<u>ATD Serial Number</u>	<u>ATD Type</u>	
	N/A	SIDIIs	

Current Date : 12/6/2011

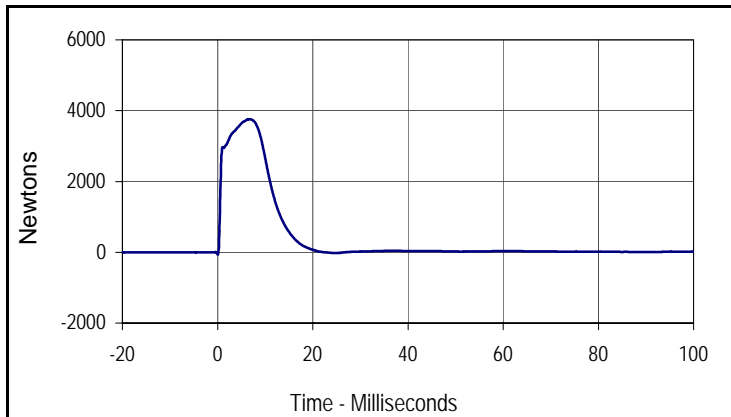
Current Time : 20:25:12

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

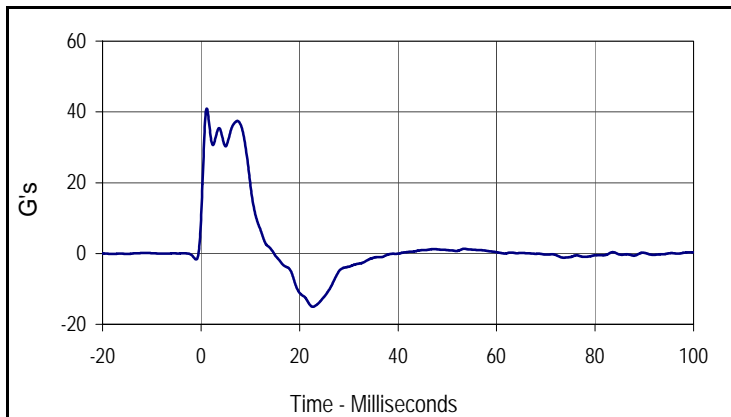
Test Date: 3/5/13
 Test I.D.: 307ACET053



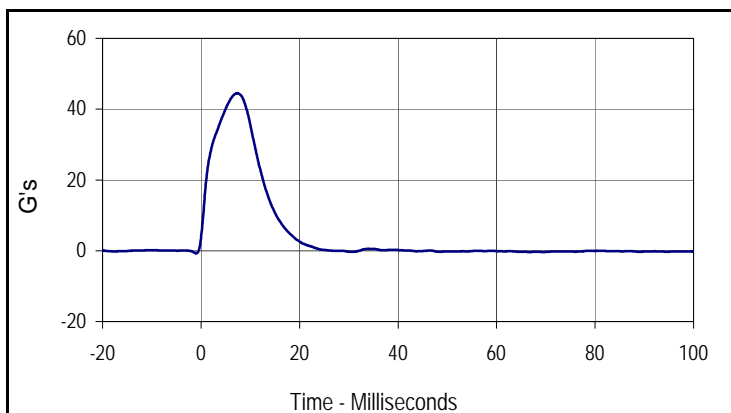
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	545	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.6	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.3	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.68	Pass
Peak Acetabulum Force Y	Newtons	3600 to 4300	3760.0	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	37.4	Pass
Peak Impactor Acceleration	G's	38 to 47	44.5	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Acetabulum Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3760.0	6.7	-67.0	0.1



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
41.0	1.2	-15.1	22.7



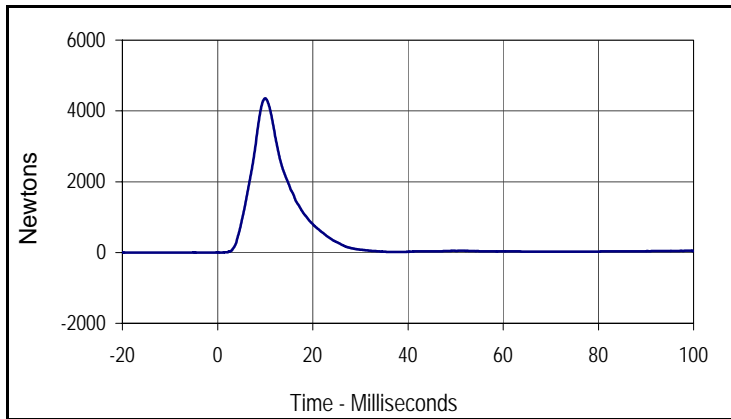
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
44.5	7.3	-0.7	-1.0

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

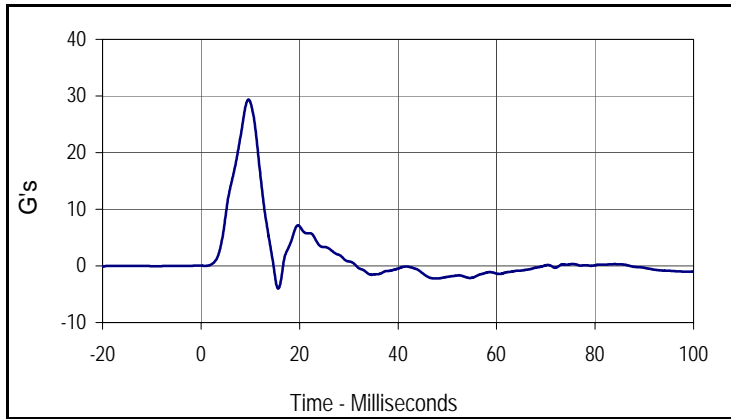
Test Date: 3/5/13
 Test I.D.: 307PL053



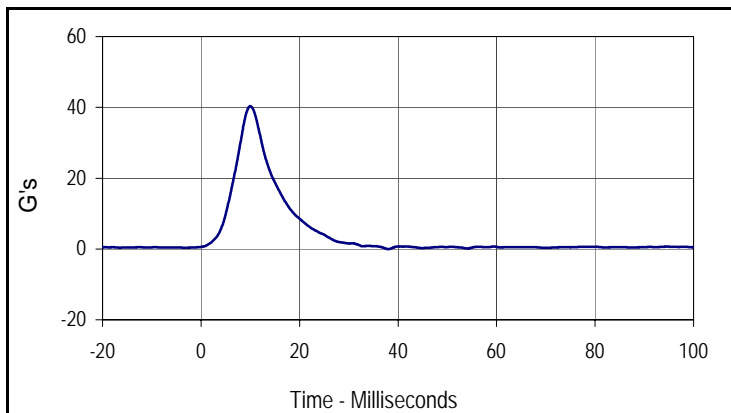
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	600	Pass
Temperature During Soak	Max	20.6 to 22.2	21.8	Pass
	Min		20.8	Pass
Humidity During Soak	Max	10.0 to 70.0	30.6	Pass
	Min		28.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.3	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.29	Pass
Peak Iliac Force	Newtons	4100 to 5100	4355.5	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	29.4	Pass
Peak Impactor Acceleration	G's	36 to 45	40.4	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Iliac Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4355.5	10.0	-1.5	-6.1



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
29.4	9.6	-4.0	15.7



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
40.4	10.0	0.0	38.0

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 – Dummy Instrumentation (ES-2re)

			ES-2re S/N F035		
			Serial Number	Manufacturer	Calibration
Head Accelerometers		X	P58760	Endevco	8/30/12
		Y	P58763	Endevco	8/31/12
		Z	P52093	Endevco	8/31/12
Thorax Rib Displacement Potentiometers		Upper	180	FTSS	6/22/12
		Middle	177	FTSS	6/22/12
		Lower	186	FTSS	6/22/12
Abdomen Load Cells		Forward	1514	Denton	6/7/12
		Middle	1510	Denton	6/7/12
		Rear	1515	Denton	6/7/12
Lower Spine Accelerometers (T12)		X	P49165	Endevco	6/21/12
		Y	P49212	Endevco	6/21/12
		Z	P52113	Endevco	6/21/12
Pubic Symphysis Load Cell		Y	506	Denton	6/21/12

TABLE 2 – Dummy Instrumentation (SID-IIs)

			SID-IIs S/N 307			
			Serial Number	Manufacturer	Calibration	
Head Accelerometers		X	P58900	Endevco	8/15/12	
		Y	P58902	Endevco	8/15/12	
		Z	P58983	Endevco	8/15/12	
Displacement Potentiometers	Shoulder		Y	1244	FTSS	8/17/12
	Thoracic Rib	Upper	Y	1249	FTSS	8/17/12
		Middle	Y	1265	FTSS	8/17/12
		Lower	Y	1277	FTSS	8/17/12
	Abdominal Rib	Upper	Y	1286	FTSS	8/17/12
		Lower	Y	1290	FTSS	8/17/12
Lower Spine Accelerometers (T12)		X	P59007	Endevco	8/16/12	
		Y	P59015	Endevco	8/16/12	
		Z	P59016	Endevco	8/16/12	
Acetabulum Load Cell		Y	277	Denton	5/24/12	
Iliac Wing Load Cell		Y	289	Denton	5/24/12	
Pelvis Plug (Struck Side)			49140	FTSS	12/7/11	
Pelvis Plug (Non-Struck Side)			46868	FTSS	10/6/11	

TABLE 3 – Vehicle Instrumentation

1	Vehicle Center of Gravity	Y	Ketx12b	ICSensor	4/20/12
	Vehicle Center of Gravity	Z	Ketx12c	ICSensor	4/20/12
2	Right Sill at Front Seat	X	13476	Endevco	8/17/12
	Right Sill at Front Seat	Y	13660	Endevco	1/4/13
	Right Sill at Front Seat	Z	13463	Endevco	8/17/12
3	Right Sill at Rear Seat	X	13378	Endevco	6/26/12
	Right Sill at Rear Seat	Y	12418	Endevco	2/14/12
	Right Sill at Rear Seat	Z	12357	Endevco	2/14/12
4	Left Sill at Front Door	Y	13662	Endevco	1/4/13
5	Left Sill at Rear Door	Y	13713	Endevco	10/22/12
6	Left A-Post Lower	Y	13475	Endevco	1/4/13
7	Left A-Post Middle	Y	13653	Endevco	1/4/13
8	Left B-Post Lower	Y	N/A	N/A	N/A
9	Left B-Post Middle	Y	N/A	N/A	N/A
10	Front Seat Track	Y	13479	Endevco	8/17/12
11	Rear Seat Structure	Y	N/A	N/A	N/A
12	Right Rear Occ. Compartment	Y	13502	Endevco	1/4/13
13	Engine Block	X	13462	Endevco	8/17/12
	Engine Block	Y	13469	Endevco	12/11/12
14	Rear Floorpan Above Axle	X	12903	Endevco	1/11/12
	Rear Floorpan Above Axle	Y	13723	Endevco	10/22/12
	Rear Floorpan Above Axle	Z	13348	Endevco	6/18/12

TABLE 4 – MDB Instrumentation

		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	13682	Endevco	11/14/12
MDB Center of Gravity	Y	13706	Endevco	11/14/12
MDB Center of Gravity	Z	13715	Endevco	11/14/12
Left Frame at Rear Axle Centerline	X	13705	Endevco	11/14/12
Left Frame at Rear Axle Centerline	Y	13711	Endevco	11/14/12