

REPORT NUMBER: SINCAP-KAR-12-048

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

**HONDA OF CANADA MFG.
2012 HONDA CIVIC LX 2-DOOR COUPE**

NHTSA No: MC5311

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



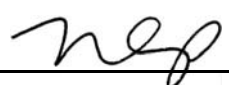
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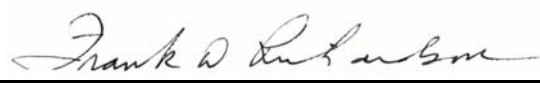
FINAL REPORT

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U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
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Prepared By: 
Mr. Kelsey A. Chiu, Engineering Department Supervisor
KARCO Engineering, LLC.

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

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

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FINAL REPORT ACCEPTANCE BY OCWS:


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

Date: 


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

Date: 

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7. Authors Mr. Kelsey A. Chiu, Engineering Department Supervisor, KARCO Mr. Frank Richardson, Program Manager, KARCO	8. Performing Organization Report No. TR-P31003-08-NC	
9. Performing Organization Name and Address KARCO Engineering, LLC. 9270 Holly Rd. Adelanto, CA 92301	10. Work Unit No.	
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16. Abstract

A 55/28 km/h 90 deg. Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2012 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 6, 2011.

The impact velocity of the Moving Deformable Barrier was 62.2 km/h and the outside ambient temperature at the struck (driver's) side of the vehicle was 15.0 deg. C. The target vehicle's maximum post-test static crush was 209 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	230.8
Maximum Thorax Rib Deflection	mm	44	33
Total Abdominal Force	N	2500	1550
Pubic Symphysis Force	N	6000	2780

Measurement Description	Passenger ATD (SID-IIs)		
	Units	IARV	Result
Head Injury Criteria (HIC ₃₆)		1000	483.8
Resultant Lower Spine Acceleration	g	82	73
Total Pelvic Force (Sum of Acetubular and Iliac Forces)	N	5525	3925
Maximum Thoracic Rib Deflection	mm	38*	32
Maximum Abdominal Rib Deflection	mm	45*	41

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

* Proposed IARV

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SECTION 1

TEST PURPOSE AND PROCEDURE

This moving deformable barrier side impact test is part of the MY 2012 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 2012 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 August 2011.

SECTION 2

SUMMARY OF TEST RESULTS

A 2012 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 62.2 km/h (38.6 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 6, 2012. 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 August 2011. 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.

Dummy injury readings were recorded as follows:

Measurement Description	Units	Driver ATD (ES-2re)	
		Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	230.8
Maximum Thorax Rib Deflection	mm	44	33
Combined Abdominal Force	N	2500	1550
Pubic Symphysis Force	N	6000	2780

Measurement Description	Units	Passenger ATD (SID-IIs)	
		Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	483.8
Lower Spine (T12) Resultant Acceleration	g	82	73
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3925
Maximum Thoracic Rib Deflection	mm	38*	32
Maximum Abdominal Rib Deflection	mm	45*	41

*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	No		No	

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: 2012 Honda Civic LX 2-Door Coupe

NHTSA No. MC5311

Test Program: NCAP MDB Side Impact Test

Test Date: 02/06/12

CONVERSION FACTORS

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

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2012 Honda Civic LX 2-Door Coupe

NHTSA No. MC5311

Test Program: NCAP MDB Side Impact Test

Test Date: 02/06/12

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	MC5311
Model Year	2012
Make	Honda
Model	Civic LX
Body Style	2-Door Coupe
VIN	2HGFG3B53CH514586
Body Color	Alabaster Silver Met.
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
All Wheel Drive (AWD)	No

Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks	Yes
Power Window Auto-Reverse	Yes
Other Optional Feature	None
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	None

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	Oct-11
Vehicle Type	Passenger

GVWR (kg)	1660
GAWR Front (kg)	900
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: 2012 Honda Civic LX 2-Door Coupe

NHTSA No. MC5311

Test Program: NCAP MDB Side Impact Test

Test Date: 02/06/12

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	210	210	210	210
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	383.0	239.5		420.5	308.0		423.0	313.0	
Right	kg	367.5	231.5		378.5	278.5		375.0	280.0	
Ratio	%	61.4%	38.6%	100.0%	57.7%	42.3%	100.0%	57.4%	42.6%	100.0%
Total	kg	750.5	471.0	1221.5	799.0	586.5	1385.5	798.0	593.0	1391.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1221.5
Actual Weight of 2 P572 ATDs Used	kg	125.0
Rated Cargo/Luggage Wt (RCLW)	kg	44.8
Calculated Vehicle Target Wt (TVTW)	kg	1391.3

A
B
C
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

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Trunk Soft Trim	1.5
Non-Struck Side Door/Interior Panels	6.0
Non-Struck Side Window	5.0
Non-Struck Side Mirror	1.0
Taillights	2.0
Rear Bumper Cover	4.0
Rear Bumper Beam	8.5
Front Bumper Cover	5.5
Ballast / Equipment Added	106.0

DATA SHEET NO. 1 ... (CONTINUED)**GENERAL TEST AND VEHICLE PARAMETER DATA**Test Vehicle: 2012 Honda Civic LX 2-Door Coupe NHTSA No. MC5311Test Program: NCAP MDB Side Impact Test Test Date: 02/06/12**TEST VEHICLE ATTITUDE AND CG**

Measurement Description	Units	Fully Loaded	As Tested	Meets Requirement***
LF	mm	656	664	Yes
RF	mm	679	671	Yes
RR	mm	645	637	Yes
LR	mm	656	651	Yes
Vehicle CG (Aft of Front Axle)	mm	1121	1113	
Vehicle CG (Left (+)/Right (-) from Longitudinal Centerline)	mm	44	39	

***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. 2**SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA**Test Vehicle: 2012 Honda Civic LX 2-Door CoupeNHTSA No. MC5311Test Program: NCAP MDB Side Impact TestTest Date: 02/06/12**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	1.3	0.0	0.6
Front Passenger Seat	Fixed	Fixed	Fixed
Front Center Seat	Fixed	Fixed	Fixed
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle	As Tested SCRP Height	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid Fore/Aft	Forwardmost
Driver Seat	0.6	496	Max	484	496	508
			Mid	484	496	508
			Min	484	496	508
Front Passenger Seat	Fixed	473	Max	461	473	485
			Mid	461	473	485
			Min	461	473	485
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: 2012 Honda Civic LX 2-Door Coupe

NHTSA No. MC5311

Test Program: NCAP MDB Side Impact Test

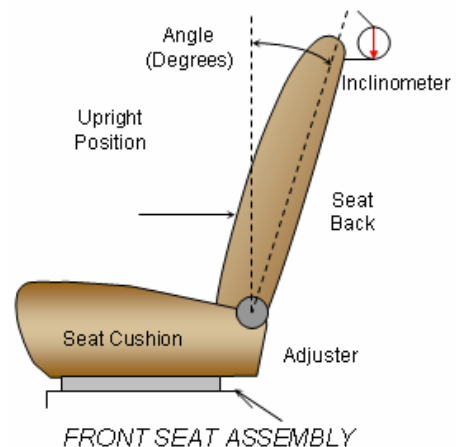
Test Date: 02/06/12

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 front center and front passenger's seat backs are 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	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degree	Detent*
Driver Seat w/Seated Dummy	70.1	36	8.2	4
Front Passenger Seat	65.6	36	8.2	4
Front Center Seat				
Struck Side Rear Seat w/Seated Dummy	30.3	16	4.4	3
Non-Struck Side Rear Seat	30.3	16	4.4	3
Rear Center Seat	Fixed to LR	Fixed to LR	Fixed to LR	Fixed to LR

DATA SHEET NO. 2 ... (CONTINUED)**SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA**Test Vehicle: 2012 Honda Civic LX 2-Door CoupeNHTSA No. MC5311Test Program: NCAP MDB Side Impact TestTest Date: 02/06/12**SEAT BELT ANCHORAGE ADJUSTMENT**

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

	Total No. of Positions	Placed in Position
Driver Seat	Fixed	Fixed
Rear Seat	Fixed	Fixed

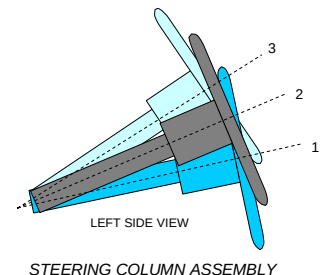
HEAD RESTRAINT ADJUSTMENT

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	6	Full Up
Rear Seat	1	1

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	19.4	152
Geometric Center - Position 2	22.0	171
Uppermost - Position 3	24.7	190
Telescoping Steering Wheel Travel		38
Test Position	22.0	171

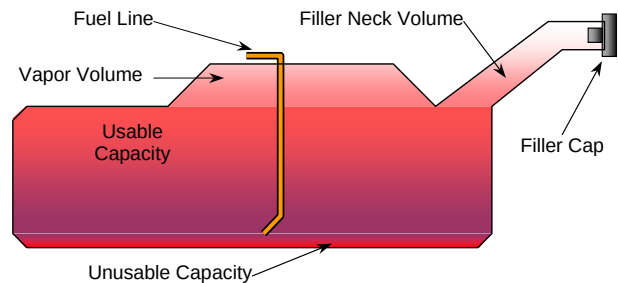
DATA SHEET NO. 2 ... (CONTINUED)**SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA**Test Vehicle: 2012 Honda Civic LX 2-Door CoupeNHTSA No. MC5311Test Program: NCAP MDB Side Impact TestTest Date: 02/06/12**FUEL TANK CAPACITY**

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% $\pm$ 1% of the Usable Capacity stated in the Form No. 1? ☒ **Yes** ☐ **No**

FUEL PUMP

The vehicle is equipped with an electric fuel pump. The fuel pump is activated when the ignition is turned from Lock to On for two (2) seconds and then pressure is maintained.

**VEHICLE FUEL TANK ASSEMBLY**

DATA SHEET NO. 3

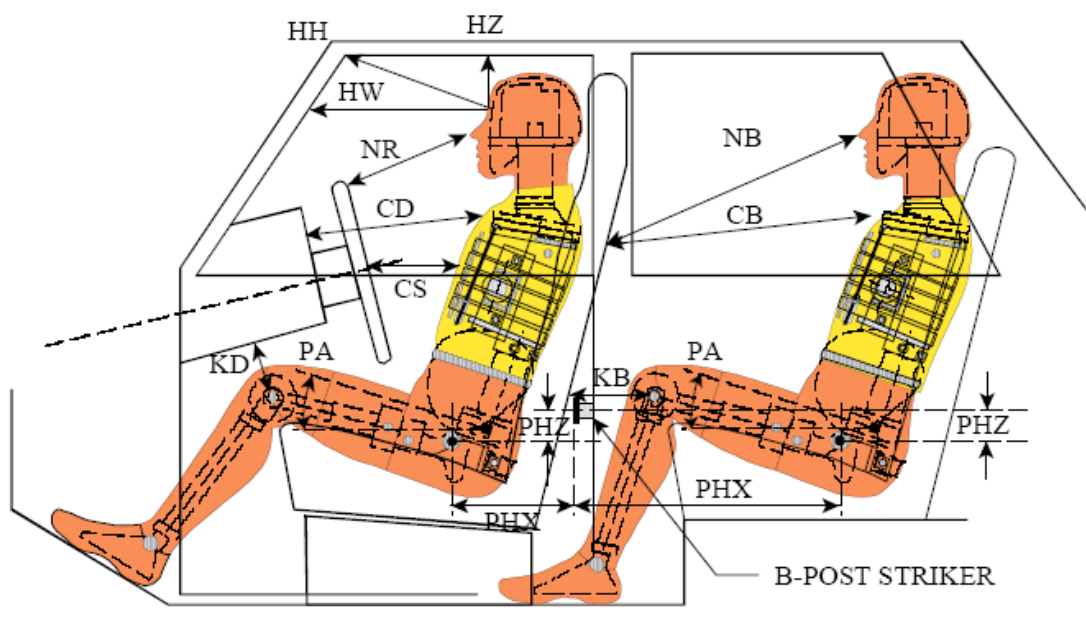
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2012 Honda Civic LX 2-Door Coupe

NHTSA No. MC5311

Test Program: NCAP MDB Side Impact Test

Test Date: 02/06/12



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	355			
HW		Head to Windshield	631			
HZ	HZ	Head to Roof	120		184	
NR	NB	Nose to Rim/Seat Back	431		483	
CD	CB	Chest to Dash/Seat Back	586		497	
CS		Chest to Steering Wheel	297			
KD(L)/KDA(L)°	KB(L)/KBA(L)°	Left Knee to Dash/Seat Back	125	29.9	243	17.8
KD(R)/KDA(R)°	KB(R)/KBA(R)°	Right Knee to Dash/Seat Back	124	31.4	245	16.4
PAX°	PAX°	Pelvic Tilt Angle X		18.1		20.9
	PAY°	Pelvic Tilt Angle Y				0.0
PHX	PHX	Hip Point to Striker (x-axis)	452		428	
PHZ	PHZ	Hip Point to Striker (z-axis)	234		243	

DATA SHEET NO. 4

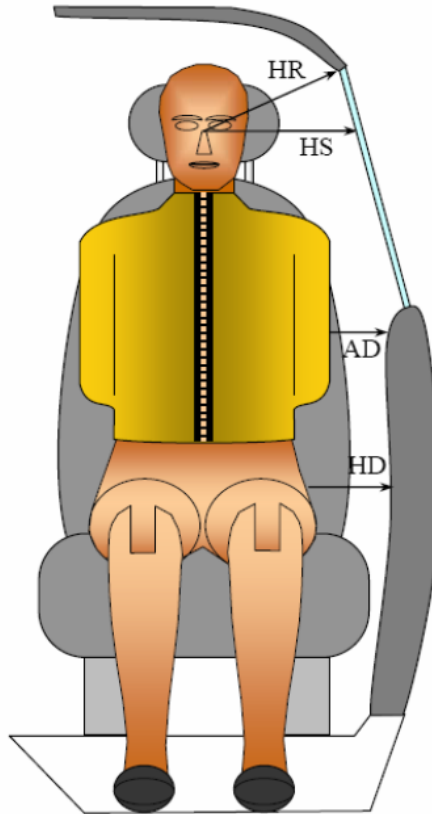
DUMMY LATERAL CLEARANCE DIMENSIONS

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FRONT VIEW OF DUMMY

DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver	Passenger
HR	Head to Side Header	mm	175	256
HS	Head to Side Window	mm	296	417
AD	Arm to Door	mm	92	179
HD	H-Point to Door	mm	153	180

DATA SHEET NO. 5

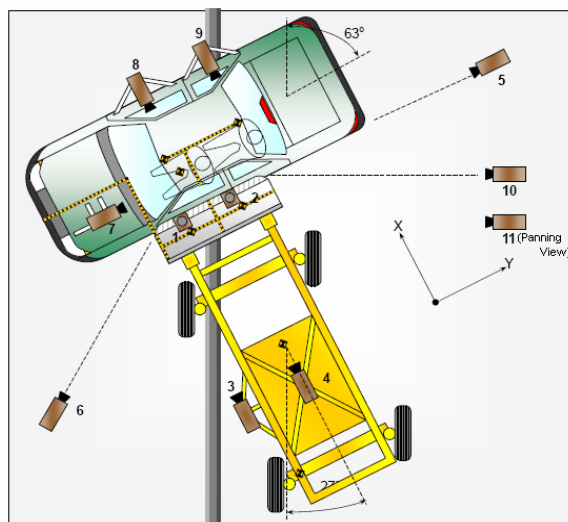
CAMERA AND INSTRUMENTATION DATA

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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)	462	-520	-572	24	1000
8	Driver Side (On-Board)	1598	674	-473	14	1000
9	Passenger Side (On-Board)	1509	1637	-526	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

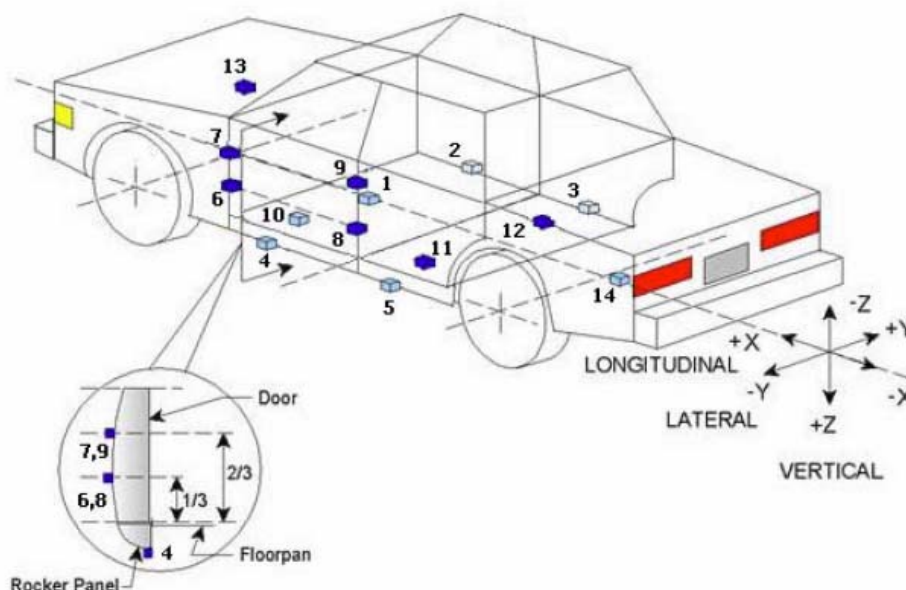
TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2012 Honda Civic LX 2-Door Coupe

NHTSA No. MC5311

Test Program: NCAP MDB Side Impact Test

Test Date: 02/06/12



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

Loc. No.	Sensor Description	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	1837	18	-235
2	Right Sill at Front Seat	2293	702	-320
3	Right Sill at Rear Seat			
4	Left Sill at Front Door	2745	-645	-162
5	Left Sill at Rear Door	1631	-659	-160
6	A-Pillar Lower	3055	-760	-480
7	A-Pillar Middle	3055	-760	-718
8	B-Pillar Lower			
9	B-Pillar Middle			
10	Front Seat Track	2228	-530	-295
11	Rear Seat Structure			
12	Right Rear Occupant Compartment	1924	465	-215
13	Engine Block	3679	95	-834
14	Rear Floorpan Above Axle	845	380	-470

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

DATA SHEET NO. 7

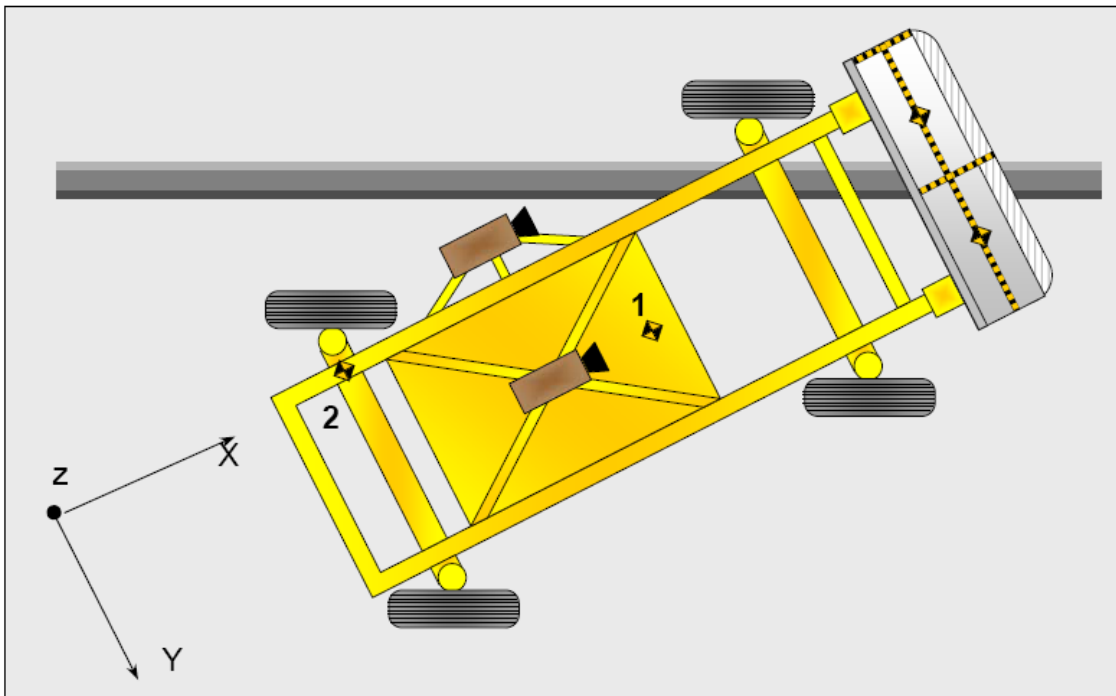
MDB ACCELEROMETER LOCATIONS

Test Vehicle: 2012 Honda Civic LX 2-Door Coupe

NHTSA No. MC5311

Test Program: NCAP MDB Side Impact Test

Test Date: 02/06/12



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: 2012 Honda Civic LX 2-Door CoupeNHTSA No. MC5311Test Program: NCAP MDB Side Impact TestTest Date: 02/06/12**TEST DUMMY INFORMATION AND CONTACT POINTS**

Dummy Body Part	Front Seat Dummy (ES-2re)	Rear Seat Dummy (SID-1Is)
Face	Curtain Airbag, Side Header	Curtain Airbag
Top of Head	Side Header	Curtain Airbag, Side Header, Center Headrest
Left Side of Head	Curtain Airbag, Side Header	Curtain Airbag, Side Header
Back of Head	Curtain Airbag, Headrest	Curtain Airbag, Center Headrest
Left Shoulder	None	Curtain Airbag, Door Panel
Upper Torso	Seat, Torso Airbag	Door Panel
Lower Torso	Seat, Torso Airbag	Door Panel
Left Hip	Door Panel	Seat
Left Knee	Right Knee	Door Panel, Right Knee

POST-TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Rear Hatch / Other Door
	Front	Rear	Front	Rear	
Remained Closed and Operational	No		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)	n/a		n/a		n/a

POST-TEST SEAT PERFORMANCE

Description	Struck Side		Non-Struck Side	
	Front	Rear	Front	Rear
Seat Movement Along Seat Track	No		No	
Seat Disengagement from Floor Pan	No		No	
Seat Back Movement from Initial Position	No		No	
Seat Back Collapse	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	Left Front Window Broken
Other Notable Effects	Rear Window Broken

DATA SHEET NO. 8 ... (CONTINUED)**POST-TEST OBSERVATIONS**

Test Vehicle: 2012 Honda Civic LX 2-Door Coupe NHTSA No. MC5311
 Test Program: NCAP MDB Side Impact Test Test Date: 02/06/12

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side Driver		Struck Side Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	Yes	No	
Knee Airbag	No		No	
Side Airbag 1 (Curtain)	Yes	Yes	Yes	Yes
Side Airbag 1 (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		2630
Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)	mm		373
Actual Impact Point (Aft of Front Axle)	mm		375
Horizontal Offset (+ forward / - rearward)	mm	± 50 of Intended Impact Point	-2
Vertical Offset (+ down / - up)	mm	± 20 of Intended Impact Point	-1

DATA SHEET NO. 9**MDB SUMMARY OF RESULTS**Test Vehicle: 2012 Honda Civic LX 2-Door CoupeNHTSA No. MC5311Test Program: NCAP MDB Side Impact TestTest Date: 02/06/12**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	62.16
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.11
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90.0
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	63.0
MDB Crabbed Angle to MDB Forward Line of Motion	degrees	26.0 to 28.0	26.0

MAXIMUM STATIC CRUSH OF HONEYCOMB FACE

Vertical Location			From Centerline		Max. Crush (mm)
Row	Description	Height (mm)	Distance (mm)	Direction	
A	Center of Bumper	432	600	Right	252
B	Top of Bumper	533	600	Right	126
C	Mid Level	686	600	Right	82
D	Top of Stack	813	800	Left	84

DATA SHEET NO. 10

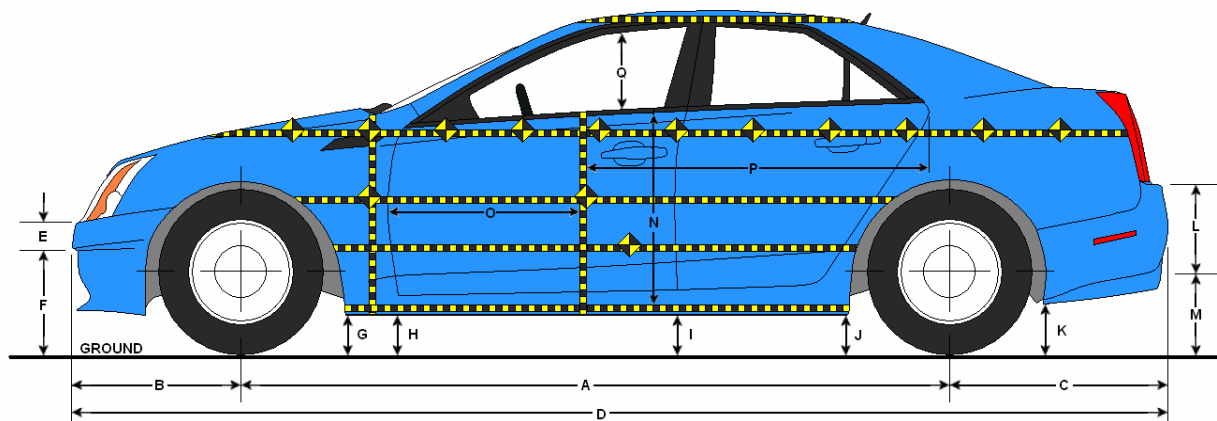
TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2012 Honda Civic LX 2-Door Coupe

NHTSA No. MC5311

Test Program: NCAP MDB Side Impact Test

Test Date: 02/06/12



LEFT SIDE VIEW

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2630	2671	41
B	Front Axle to FSOV	879	836	-43
C	Rear Axle to RSOV	844	849	5
D	Total Length at Centerline	4354	4356	2
E	Front Bumper Thickness	122	122	0
F	Front Bumper Bottom to Ground	402	417	15
G	Sill Height at Front Wheel Well	189	195	6
H	Sill Height at Front Door Leading Edge	191	201	10
I	Sill Height at B-Pillar	189	243	54
J1	Sill Height at Rear Wheel Well	185	237	52
J2	Pinch Weld Height at Rear Wheel Well	155	191	36
K	Sill Height Aft of Rear Wheel Well	412	439	27
L	Rear Bumper Thickness	353	354	1
M	Rear Bumper Bottom to Ground	263	286	23
N	Sill Height to Bottom of Front Window Sill	578	595	17
O	Front Door Leading Edge to Impact CL	754	703	-51
P	Rear Door Trailing Edge to Impact CL			
Q	Front Window Opening	323	330	7
R	Right Side Length	3031	3033	2
S	Left Side Length	3034	3017	-17
T	Vehicle Width at B-Pillar	1753	1714	-39

All measurements in mm with tolerance of ± 3 mm

DATA SHEET NO. 11

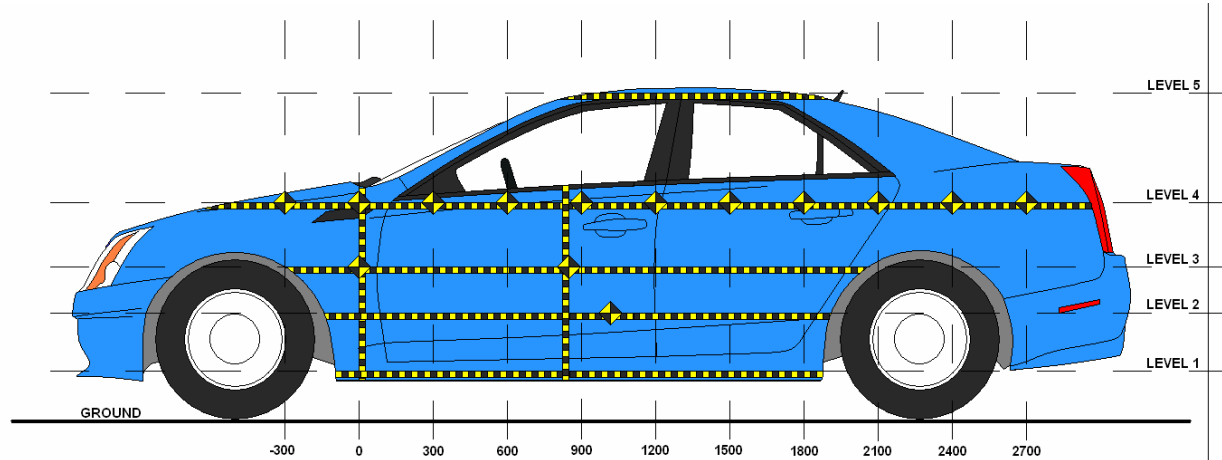
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2012 Honda Civic LX 2-Door Coupe

NHTSA No. MC5311

Test Program: NCAP MDB Side Impact Test

Test Date: 02/06/12



LEFT SIDE VIEW

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	220	29	1200
2	Occupant H-Point	494	198	450
3	Mid-Door	606	209	1050
4	Window Sill	856	166	1650
5	Window Top	1317	16	1200

DATA SHEET NO. 11 ... (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2012 Honda Civic LX 2-Door Coupe

NHTSA No. MC5311

Test Program: NCAP MDB Side Impact Test

Test Date: 02/06/12

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

	Pre-Test (mm)					Post-Test (mm)					Difference (mm)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600															
-450				742					759					17	
-300				712					731					19	
-150			621	700				655	727				34	27	
0		623	626	691			648	656	726			25	30	35	
150	657	630	629	684		653	795	794	747		-4	165	165	63	
300	659	632	629	676		683	826	817	787		24	194	188	111	
450	660	632	630	676		682	830	828	817		22	198	198	141	
600	659	633	629	675		681	830	832	829		22	197	203	154	
750	656	633	630	674	897	680	829	836	831	909	24	196	206	157	12
900	655	633	630	673	896	680	822	838	826	908	25	189	208	153	12
1050	656	634	630	674	901	679	814	839	819	914	23	180	209	145	13
1200	653	635	630	668	906	682	804	838	818	922	29	169	208	150	16
1350	653	635	630	662	915	675	792	798	790	931	22	157	168	128	16
1500	652	636	631	659	926	674	709	779	781	940	22	73	148	122	14
1650	652	636	633	659	934	670	760	785	825	946	18	124	152	166	12
1800	651	632	634	659		668	765	809	808		17	133	175	149	
1950		631	627	662			684	754	776			53	127	114	
2100			628	665				700	728				72	63	
2250				670					694					24	
2400				679					661					-18	
2550				694					699					5	
2700				711					713					2	
2850															

DATA SHEET NO. 11 ... (CONTINUED)

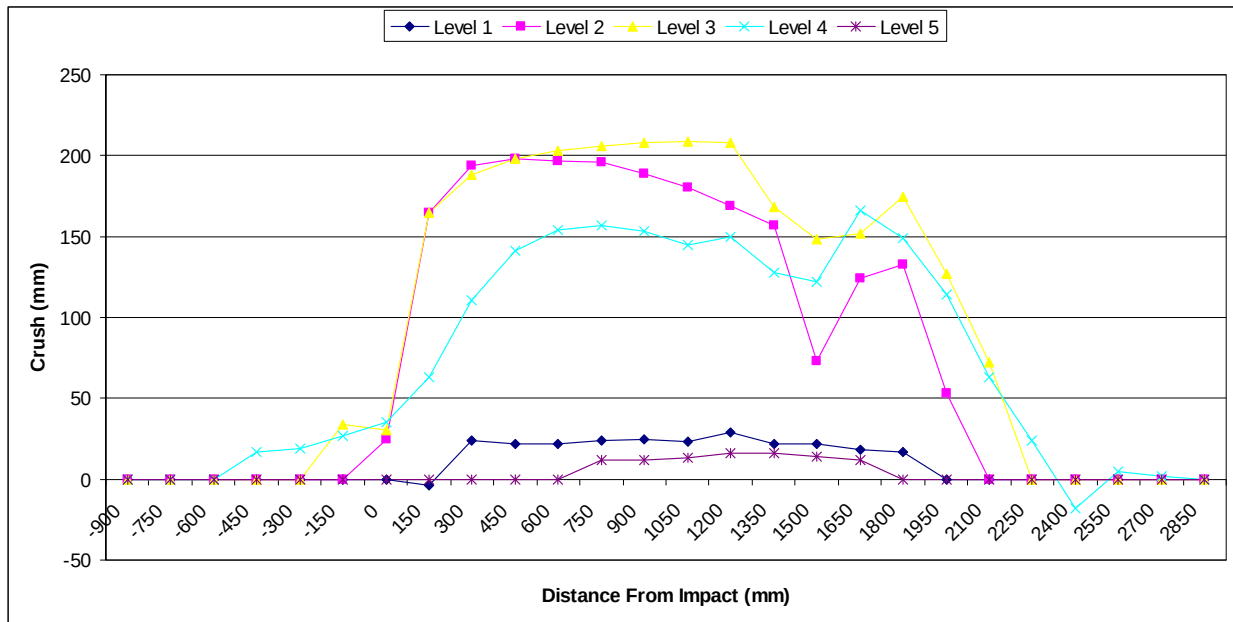
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2012 Honda Civic LX 2-Door Coupe

NHTSA No. MC5311

Test Program: NCAP MDB Side Impact Test

Test Date: 02/06/12



DATA SHEET NO. 12

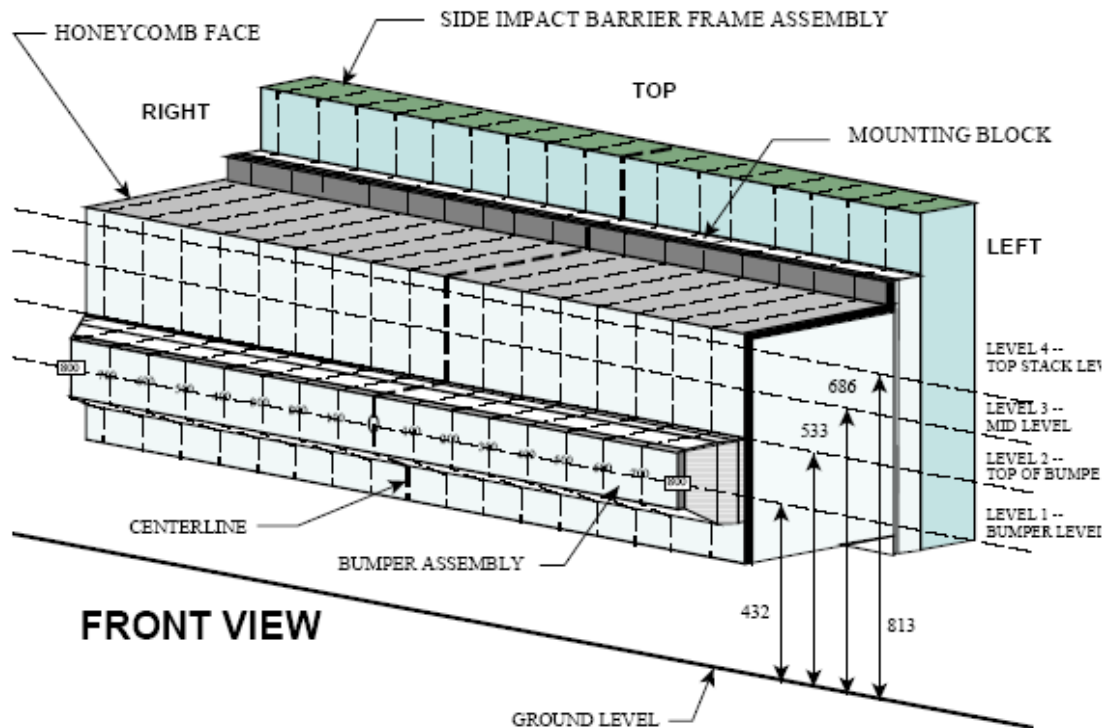
MDB EXTERIOR STATIC CRUSH MEASUREMENTS

Test Vehicle: 2012 Honda Civic LX 2-Door Coupe

NHTSA No. MC5311

Test Program: NCAP MDB Side Impact Test

Test Date: 02/06/12



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	200	225	252	244	194	173	157	136	127	122	120	117	113	113	111	118	144
2	95	102	126	119	105	76	61	51	41	37	37	32	31	29	36	46	56
3	47	47	82	80	67	37	29	18	12	2	0	-1	2	7	14	27	75
4	51	40	57	80	79	51	34	6	-7	-3	-6	-3	-1	20	52	69	84

All dimensions in millimeters.

DATA SHEET NO. 13

FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2012 Honda Civic LX 2-Door Coupe

NHTSA No. MC5311

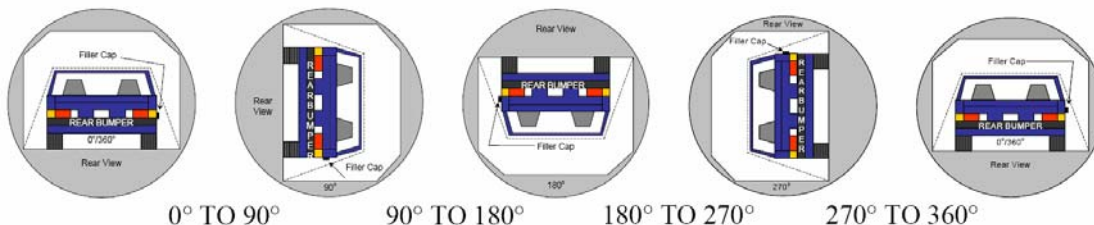
Test Program: NCAP MDB Side Impact Test

Test Date: 02/06/12

Temperature at Time of Impact: 15.0° C

Test Time: 12:41 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°	78	300	378
270° To 360°	80	300	380

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

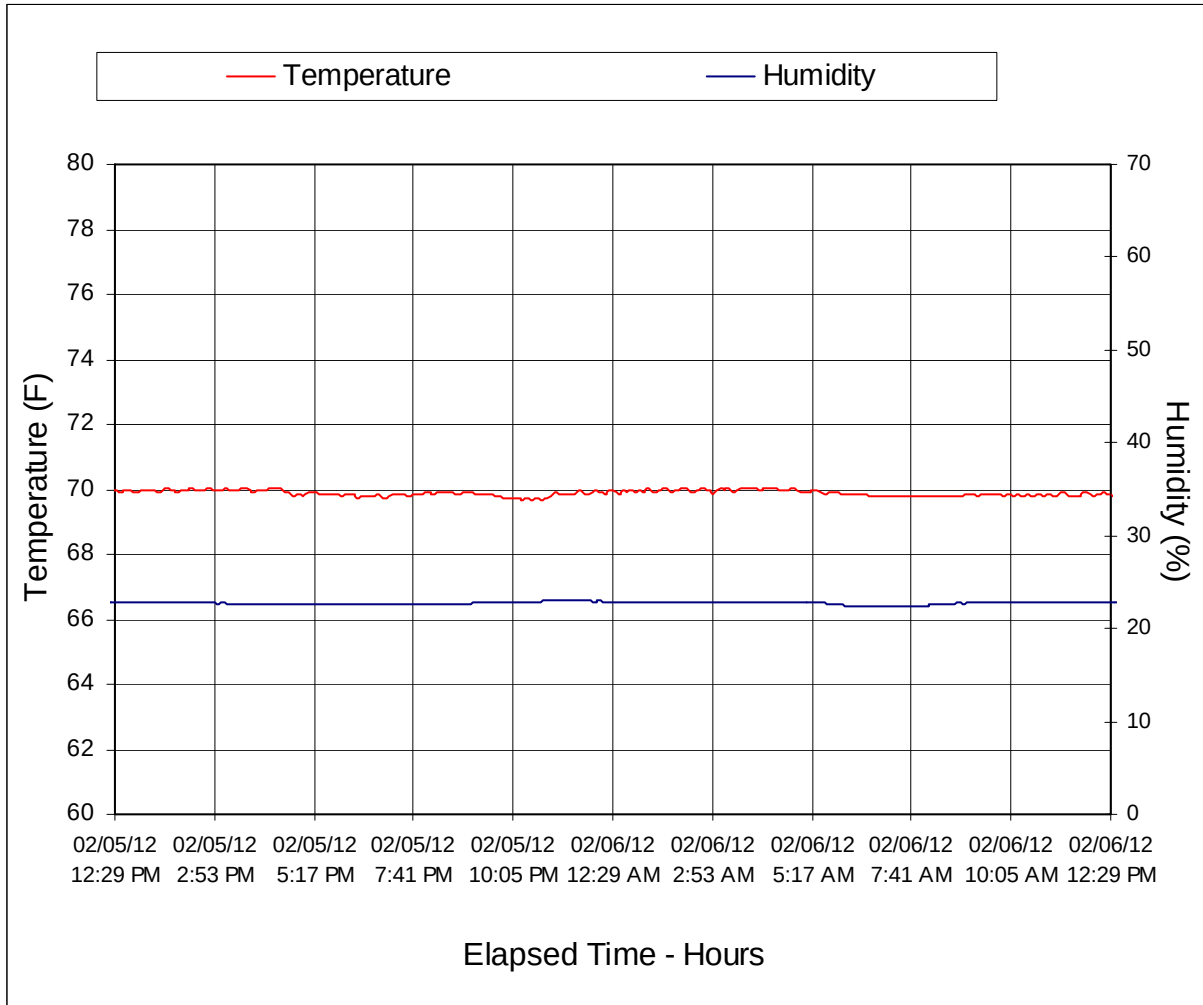
DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION

Test Vehicle: 2012 Honda Civic LX 2-Door Coupe

NHTSA No. MC5311

Test Program: NCAP MDB Side Impact Test

Test Date: 02/06/12



APPENDIX A
PHOTOGRAPHS

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



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

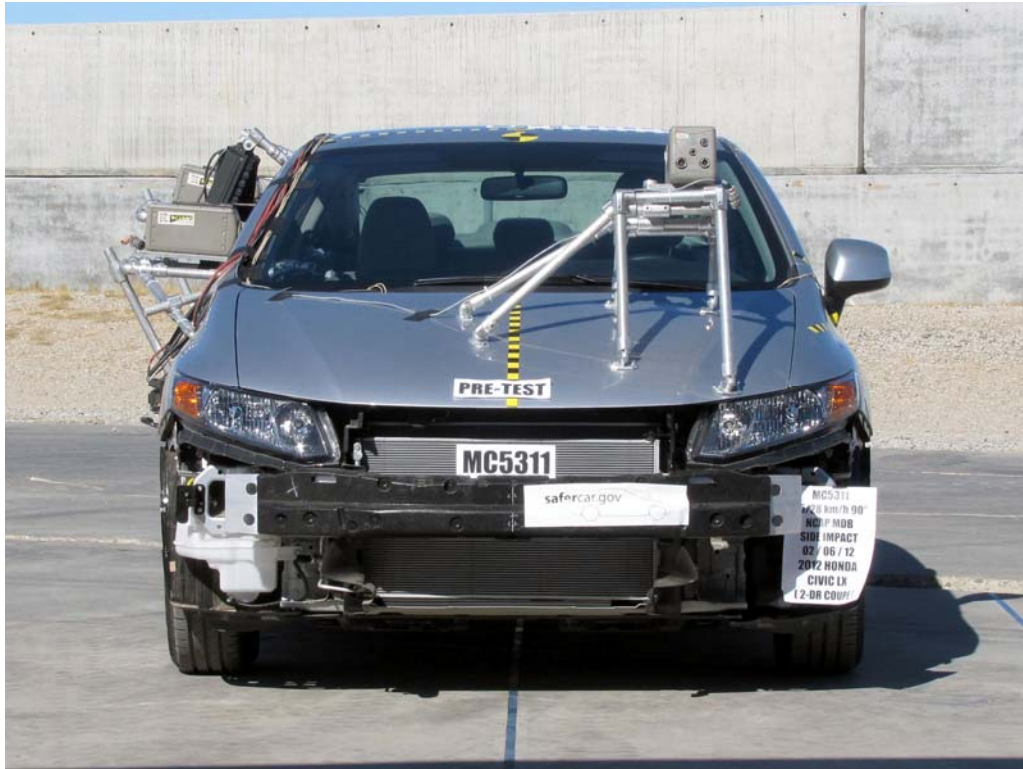


FIGURE 3. Pre-Test Frontal View of Test Vehicle



FIGURE 4. Post-Test Frontal View of Test Vehicle



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



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



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



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



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



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



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
Showing Impact Point Location



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 Door

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

Photograph Not Applicable

Vehicle Not Equipped
With Rear 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, Chalking, and Contact Switches



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 Frontal 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 Occupant Compartment



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

Photograph Not Applicable

No Driver Dummy Pelvis Contact With Side Airbag

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



FIGURE 54. Pre-Test Left Side View of Rear Passenger Dummy
Showing Belt, Chalking, and Contact Switches



FIGURE 55. Pre-Test Left Side View of Rear Passenger Dummy
Shoulder and Door Top View



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



FIGURE 57. Pre-Test Frontal View of Rear Passenger Seat Back
Prior to Dummy Positioning



FIGURE 58. Pre-Test Frontal View of Rear Passenger Dummy
Head and Shoulders in Relation to Head Restraint



FIGURE 59. Pre-Test Overhead View of Rear Passenger
Seat Pan Prior to Dummy Positioning



FIGURE 60. Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan



FIGURE 61. Pre-Test View of Rear Passenger Dummy's Neck
Showing Position of Adjustable Neck Bracket



FIGURE 62. Pre-Test View of Rear Passenger Dummy's Head
Showing Dummy's Head is Level



FIGURE 63. Pre-Test Placement of Rear Passenger Dummy's Feet



FIGURE 64. Pre-Test View of Belt Anchorage for Rear Passenger Dummy

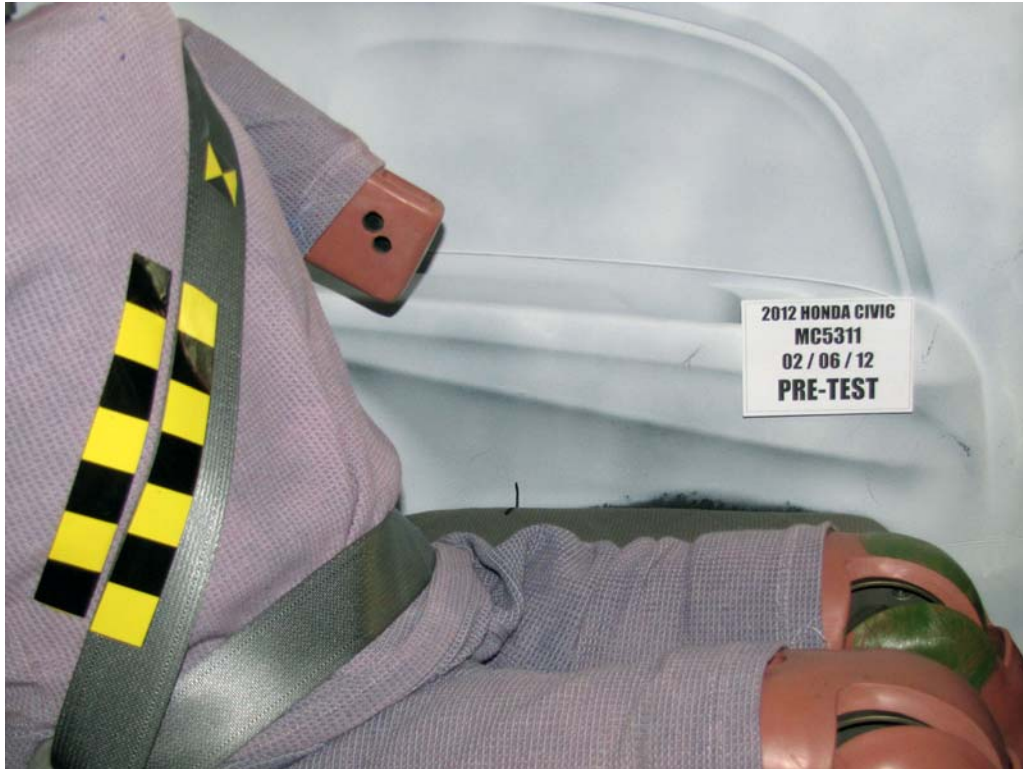


FIGURE 65. Pre-Test Close-Up Left Side View of Rear Passenger Seat Track



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



FIGURE 67. Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint



FIGURE 68. Pre-Test Rear Passenger Dummy and Door Clearance View



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



FIGURE 70. Pre-Test Right Side View of Rear Passenger Dummy
and Rear Seat Occupant Compartment



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



FIGURE 72. Pre-Test Rear Passenger Inner Door Panel View



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



FIGURE 74. Post-Test Rear Passenger Dummy Close-Up
Head Contact with Vehicle Interior View



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



FIGURE 76. Post-Test Rear Passenger Dummy Close-Up
Torso Contact with Vehicle Interior View



FIGURE 77. Post-Test Rear Passenger Dummy Close-Up
Torso Contact with Side Airbag View



FIGURE 78. 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 79. Post-Test Rear Passenger Dummy Close-Up
Pelvis Contact with Side Airbag View



FIGURE 80. Pre-Test View of Fuel Filler Cap



FIGURE 81. Post-Test View of Fuel Filler Cap



FIGURE 82. Pre-Test Front View of MDB Impactor Face



FIGURE 83. Post-Test Front View of MDB Impactor Face

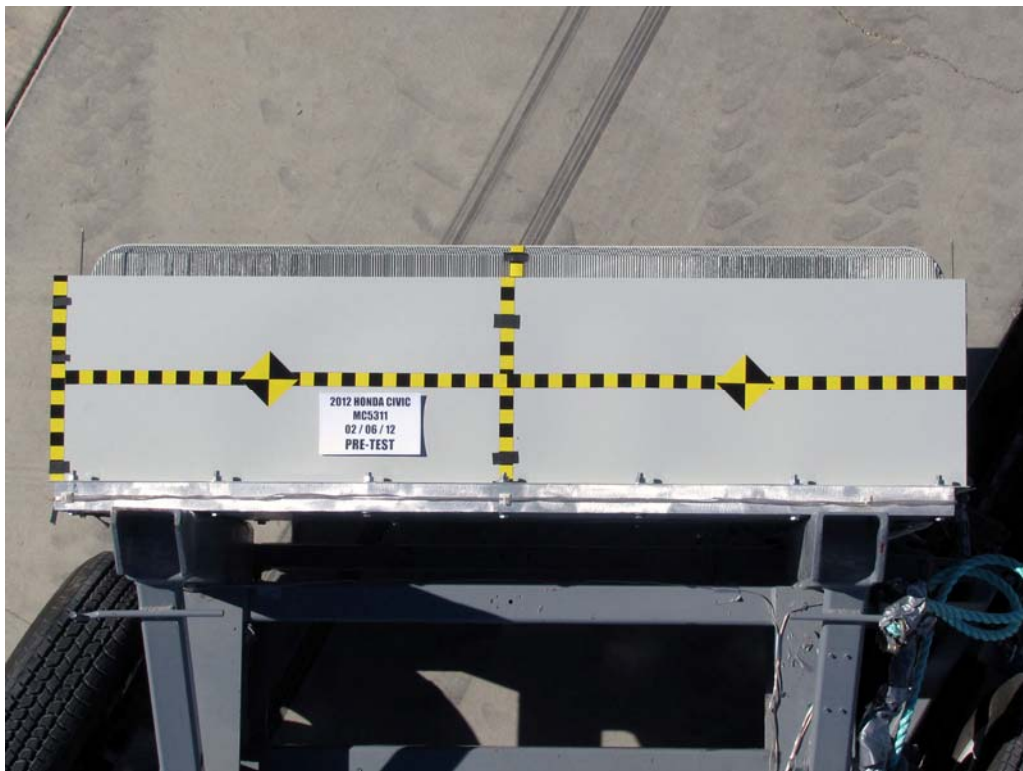


FIGURE 84. Pre-Test Top View of MDB Impactor Face



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



FIGURE 86. Pre-Test Left Side View of MDB Impactor Face



FIGURE 87. Post-Test Left Side View of MDB Impactor Face



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



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

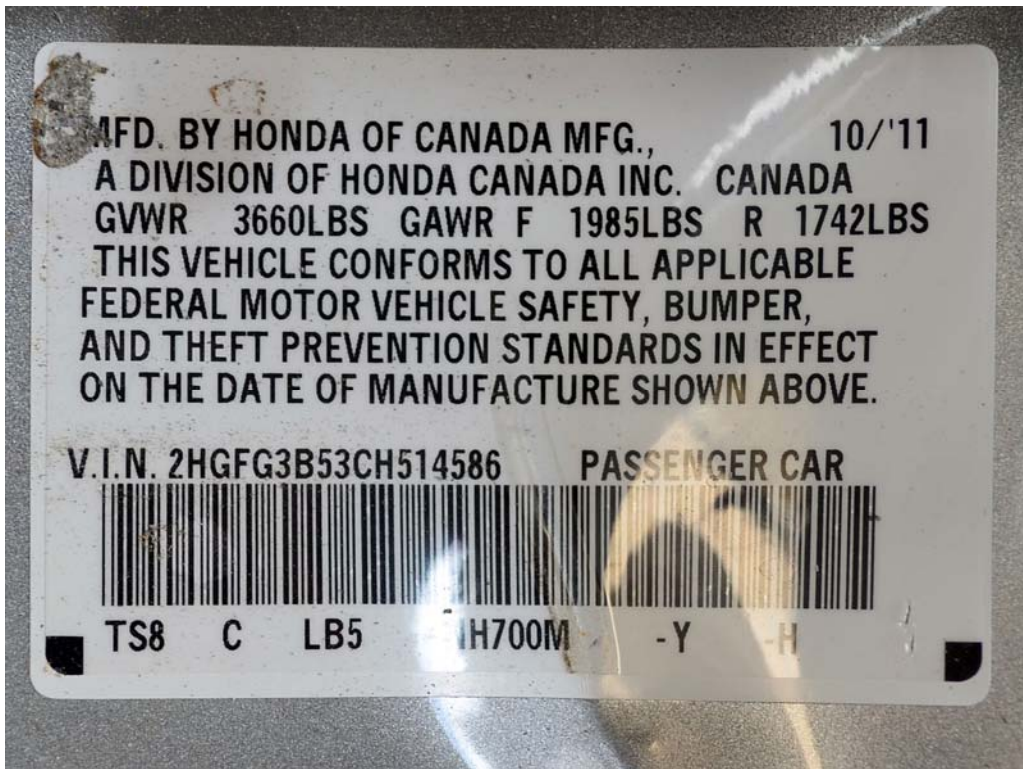


FIGURE 90. Close-Up View of Vehicle's Certification Label



FIGURE 91. Close-Up View of Vehicle's Tire Information Placard

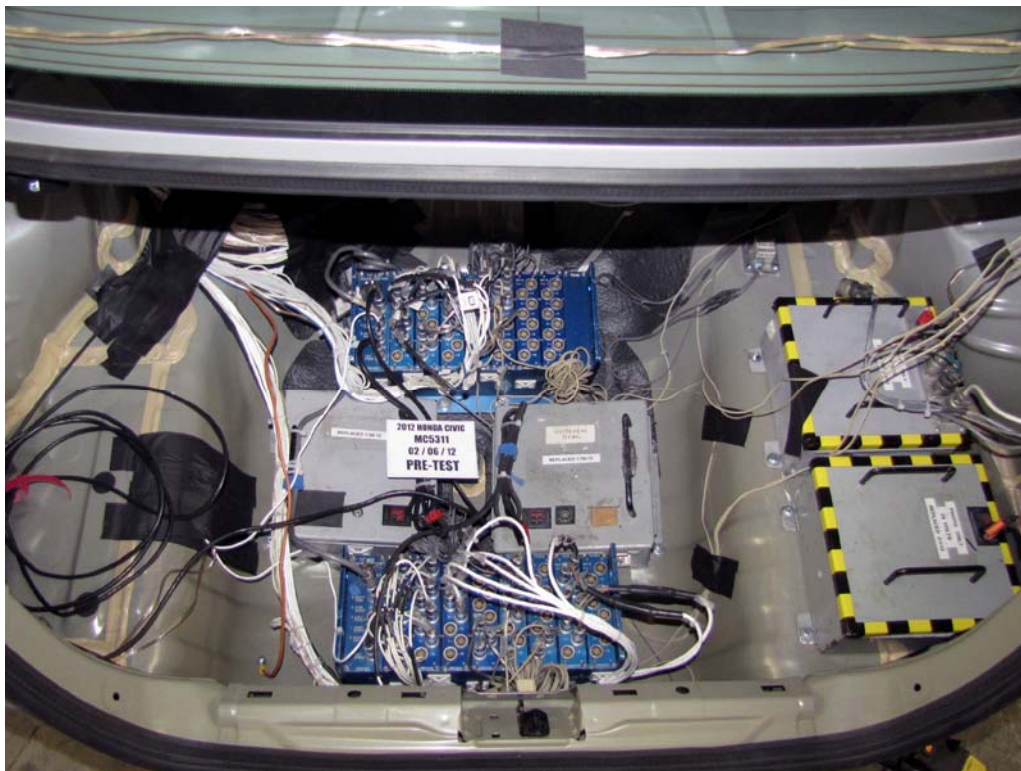


FIGURE 92. Pre-Test Ballast View



FIGURE 93. Post-Test Primary and Redundant Speed Trap Read-Out

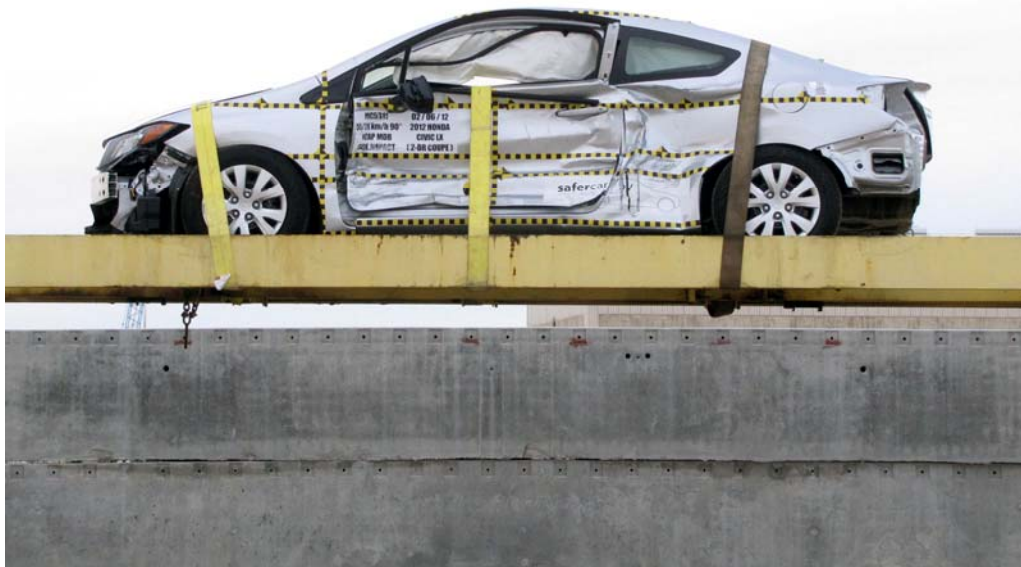


FIGURE 94. FMVSS No. 301 Static Rollover 0 Degrees



FIGURE 95. FMVSS No. 301 Static Rollover 90 Degrees



FIGURE 96. FMVSS No. 301 Static Rollover 180 Degrees

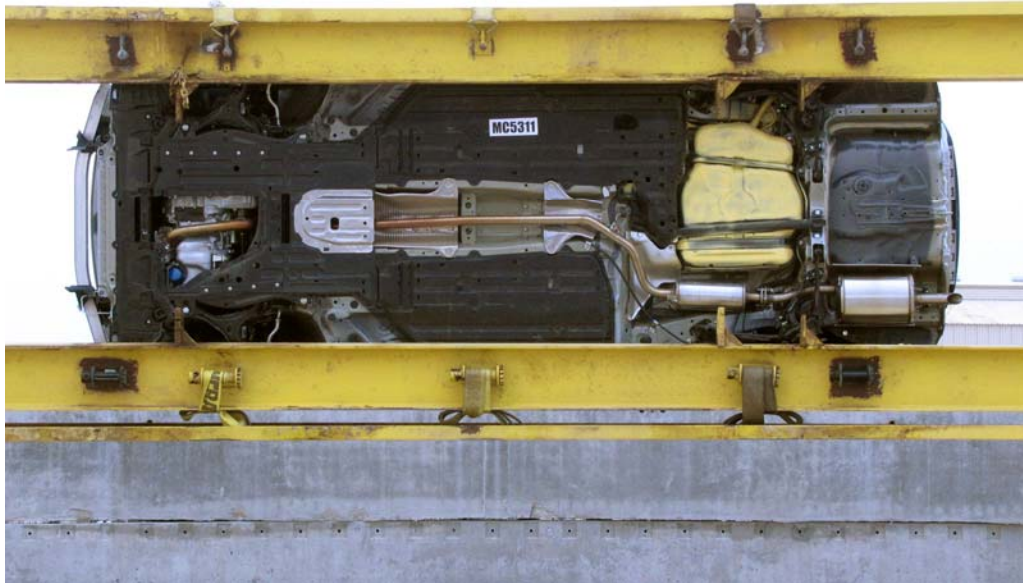


FIGURE 97. FMVSS No. 301 Static Rollover 270 Degrees

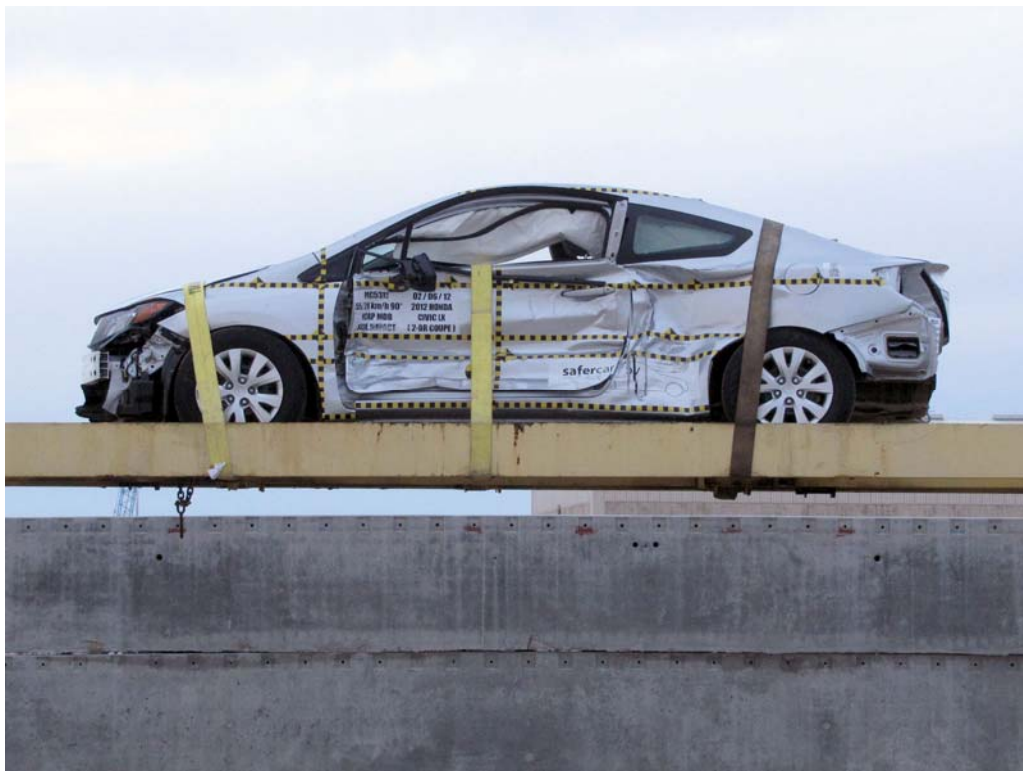


FIGURE 98. FMVSS No. 301 Static Rollover 360 Degrees



FIGURE 99. Impact Event

2012 CIVIC 2DR LX
 VIN: 3HGEJ3853CHL4586
 ENGINE NUMBER: 01827-207913
 COLOR: ALABASTER SILVER M
 CONTRA NUMBER: 893517
 INT: GRAY

EPA Fuel Economy Estimates

STANDARD EQUIPMENT AT NO EXTRA COST

- **TECHNICAL FEATURES***
 - 142hp 1.8-Liter SOHC 16-Valve
 - VTEC 4-Cylinder Engine
 - 5-Speed Automatic Transmission
 - Electric Power Windows
 - Front MacPherson Strut Suspension
 - Rear Multi-Link Suspension
 - Electric Power-Assisted
 - Steering and Power Steering
 - CARB Certified PZEV
 - Innovative Theft-Deterrent System
- **SAFETY FEATURES***
 - Driver's and Front Passenger's Dual-Side Airbags (SRS)
 - Driver's and Front Passenger's Side Airbags
 - Side Curtain Airbags
 - Anti-Lock Braking System (ABS)
 - Brake Assist
 - Electronic Brake Distribution (EBD)
 - Vehicle Stability Assist (VSA)
 - 3-Point Seat Belts
 - Front Side Belts with Automatic Tensioning System
 - Tire Pressure Monitoring System
 - Side-Impact Door Beams
 - Front and Rear Crumple Zones
 - ACE Body Structure
 - Optional Running Lights (DRL)
 - LATCH System for Child Seats

INTERIOR FEATURES

- 100-Watt AM/FM/CD Audio System with 6 Speakers Inc. MP3/WMA Playback
- Steering Wheel Mounted Controls
- USB Audio Interface
- MP3/Auxiliary Input Jack
- Air Conditioning
- With Air Filtration System
- Intelligent Multi-Function Display (I-MFD)
- Dynamic Seat Height Adjustment
- Fold-Down Rear Seatback
- Front Center Console with Armrest
- Power Windows and Door Locks
- Driver's Auto Up/Down Windows
- Tilt & Telescopic Steering Column
- Door Map Lights & Cargo Area Light
- 12-Volt Power Outlet
- Cruise Control
- Rear Mail
- Extr Assist with Auto Ejector
- Maintenance Minder System

EXTERIOR FEATURES

- 15" x 6.5" Steel Wheels with Full Wheel Covers
- 1735/150 H11 Hi-Lo-Beam Turn
- Auto-Off Headlights
- Isosensitive Windshield Wipers
- Power Window Defolster
- Power Door Mirrors
- Rear Spoiler
- Power Entry System
- Security System

Manufacturer's Suggested Retail Price
\$14,855.00

Fuel Tank of Fuel No Charge

Expected range for most drivers from 22 to 33 MPG

DESTINATION AND HANDLING 770.00

TOTAL VEHICLE PRICE (includes the Delivery Service)
\$19,225.00

License and title fees, state and local taxes and dealer options and accessories not included in the manufacturer's suggested retail price.

CITY MPG

28

Expected range for most drivers from 22 to 33 MPG

See the FREE Fuel Economy Guide at dealers or www.fueleconomy.gov

Estimated Annual Fuel Cost \$1,732

based on 15,000 miles at \$3.70 per gallon

Combined Fuel Economy This Vehicle

32

10 20 30 40 50 60

ALL CONFACTS

HIGHWAY MPG

39

Expected range for most drivers from 32 to 46 MPG

Your actual mileage will vary depending on how you drive and maintain your vehicle

Environmental Performance

Protect the environment, choose vehicles with **higher scores**:

Global Warming Score **Smog Score**

0 9 10
 Average new vehicle Cleanest

0 9 10
 Average new vehicle Cleanest

Vehicle emissions are a primary contributor to global warming and smog. Honda is proud to be a leader in environmental protection. Honda is proud to be a leader in environmental protection. Honda is proud to be a leader in environmental protection.

RIVERSIDE HONDA
 8333A RICANA AVENUE
 RIVERSIDE, CA 92504

PORT OF ENTRY: BUFFALO
 310-569
 TRANS METHOD: AYS SAN BERNARDINO
 VIN: 3HGEJ3853CHL4586

0103 JUN 2012
 REG NO: 65483
 HN-1345
 EMISSION: CALIFORNIA
 DEALR: 20853

PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS CARLINE
 U.S. Canadian Parts Content: **65%**
 Major Sources of Foreign Parts Content: **34%**

NOTE: Parts content does not include final assembly, distribution or other non-parts costs.

FOR THIS VEHICLE
 U.S. Canadian Parts Content: **65%**
 Major Sources of Foreign Parts Content: **34%**

Country of Origin: Europe
USA
USA
JAPAN

GOVERNMENT SAFETY RATINGS

Frontal Crash **Driver Passenger** **Not Rated** **Not Rated**

Rear ratings based on the risk of injury in a frontal impact. Frontal ratings should ONLY be compared to other vehicles of similar size and weight.

Side Crash **Front seat Rear seat** **Not Rated** **Not Rated**

Rear ratings based on the risk of injury in a side impact.

Rollover **Not Rated**

Rear ratings based on the risk of rollover in a single vehicle crash.

Star ratings range from 1 to 5 stars (★★★★★) with 5 being the highest.

Source: National Highway Traffic Safety Administration (NHTSA).

www.safercar.gov or 1-888-327-4236

This vehicle is equipped with a front bumper of a type that has been tested at an impact speed of 5 miles per hour, and a rear bumper of a type that has been tested at an impact speed of 5 miles per hour, resulting in no damage to the vehicle's body and safety systems and no damage to the bumper and its components. *Notwithstanding, the vehicle may be subject to structural damage that can be repaired with the use of common repair materials and without replacing the bumper. The bumper the bumper, the bumper, the bumper the bumper will require repair after a low speed collision. This vehicle exceeds the current federal bumper standard of 2.5 miles per hour.

FIGURE 100. Monroney Label

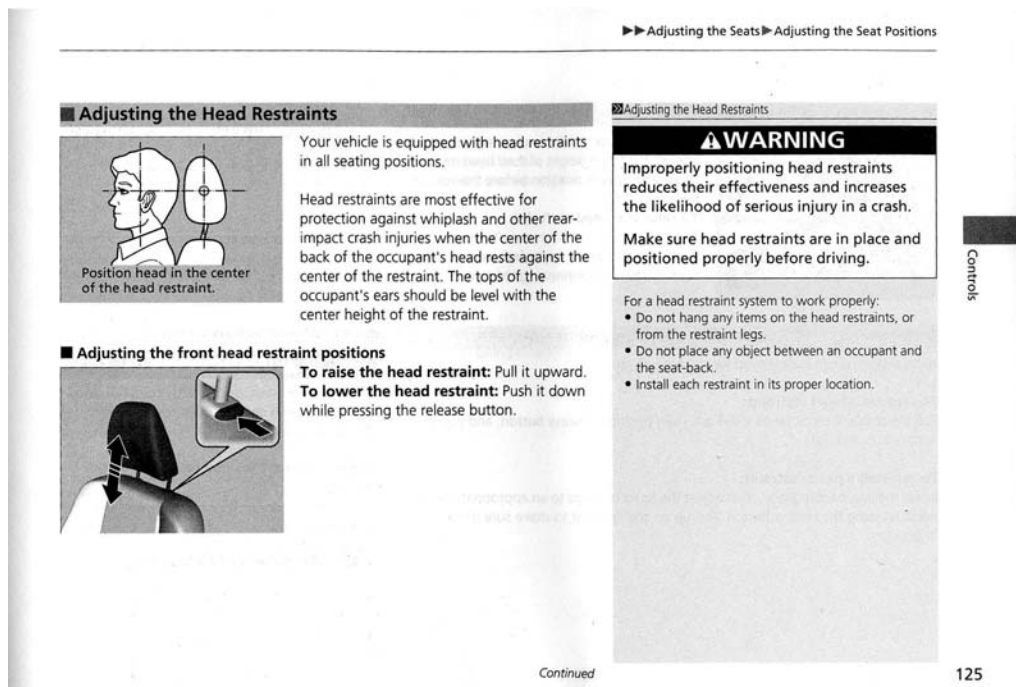


FIGURE 101. Driver Head Restraint Use and Adjustment
Information from Vehicle Owner's Manual

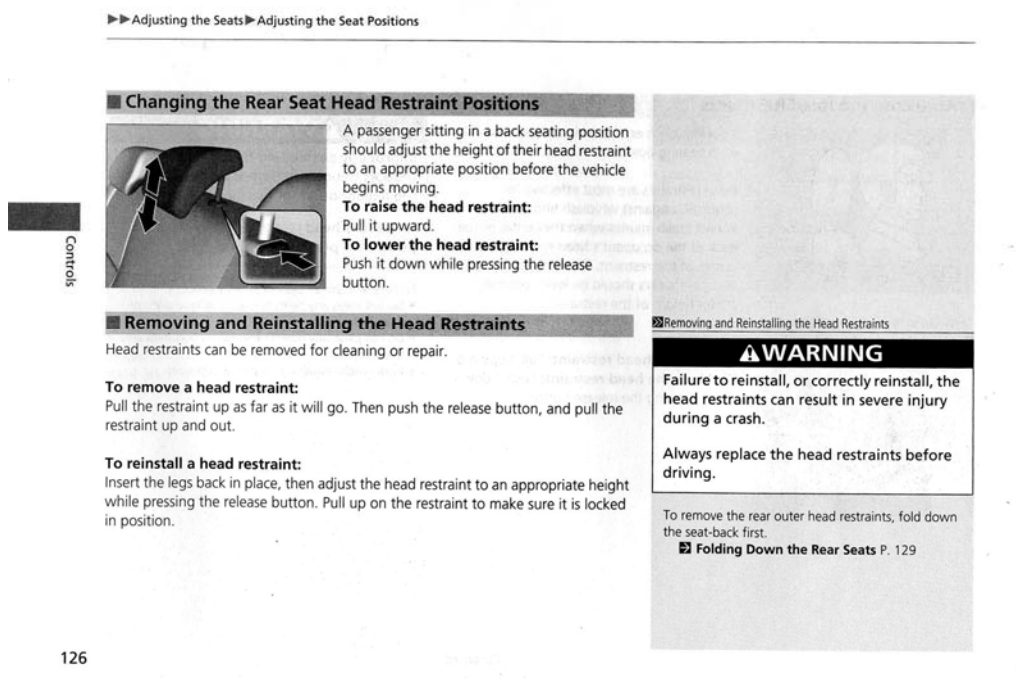


FIGURE 102. Left Rear Passenger Head Restraint
Use and Adjustment Information from Vehicle Owner's Manual

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)

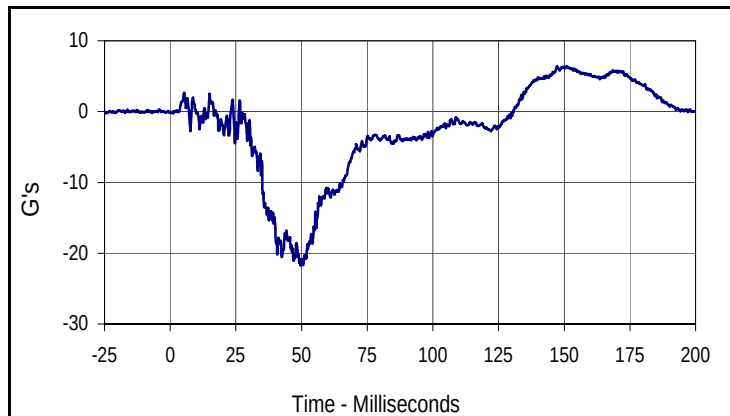
MDB Rear Acceleration (Y)

Left MDB Contact Switch

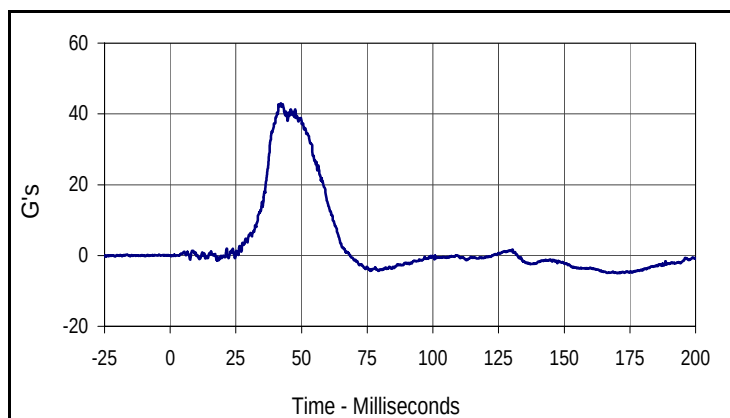
Right MDB Contact Switch

Test Vehicle: 2012 Honda Civic LX 2-Door Coupe
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

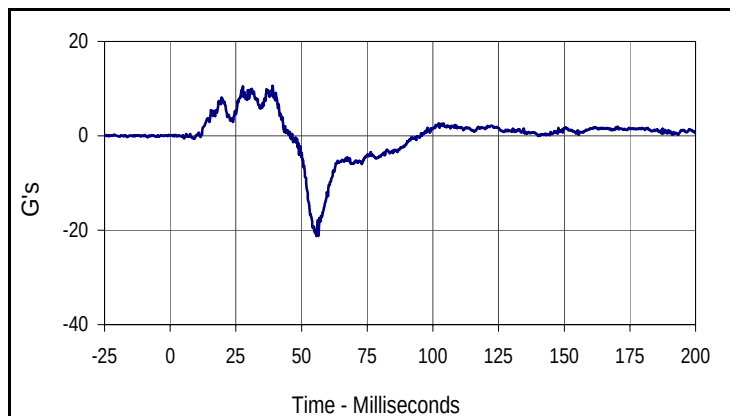
NHTSA No.: MC5311
 Test Date: 2/6/12



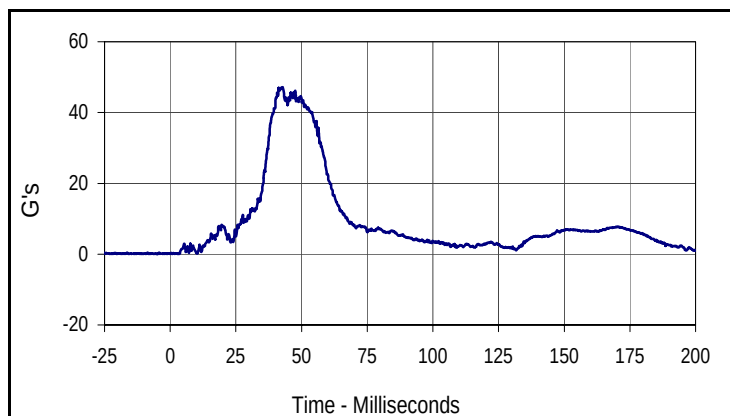
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Driver Head Acceleration X Primary			
Plot No.	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
6.4	151.0	-21.8	49.7



Curve Description			
Driver Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
43.0	42.1	-5.0	170.3



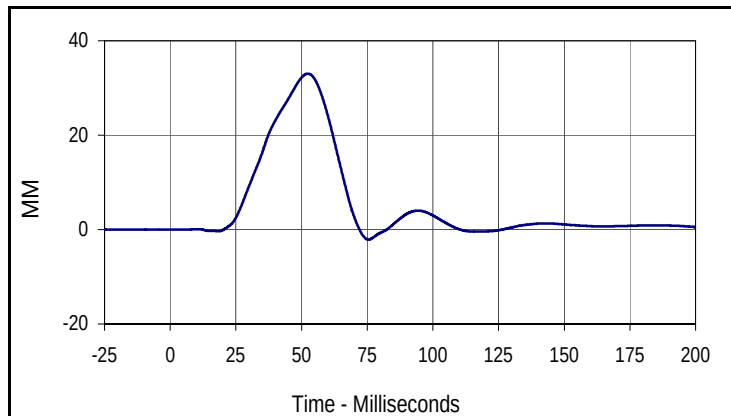
Curve Description			
Driver Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
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Max	Time	Min	Time
10.5	39.0	-21.2	55.6



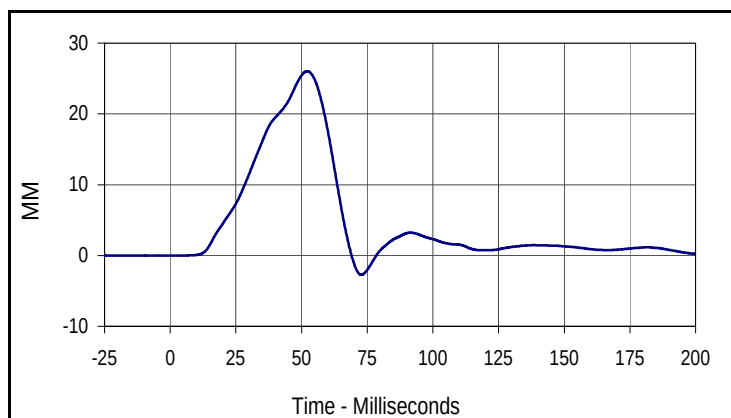
Curve Description			
Driver Head Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
004	RES	1000	G's
Max	Time	Min	Time
47.2	42.8	0.1	0.7

Test Vehicle: 2012 Honda Civic LX 2-Door Coupe
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

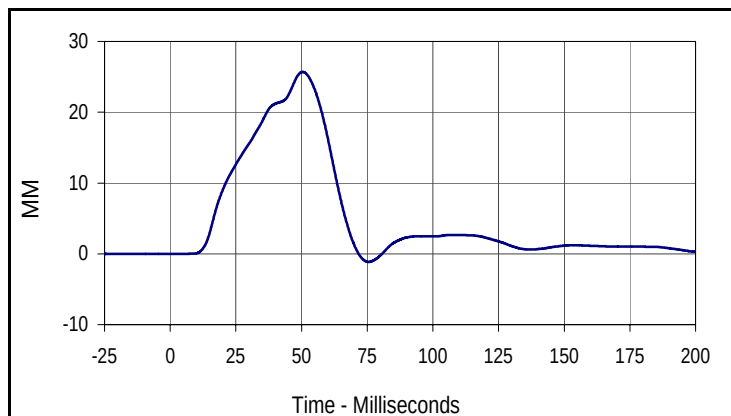
NHTSA No.: MC5311
 Test Date: 2/6/12



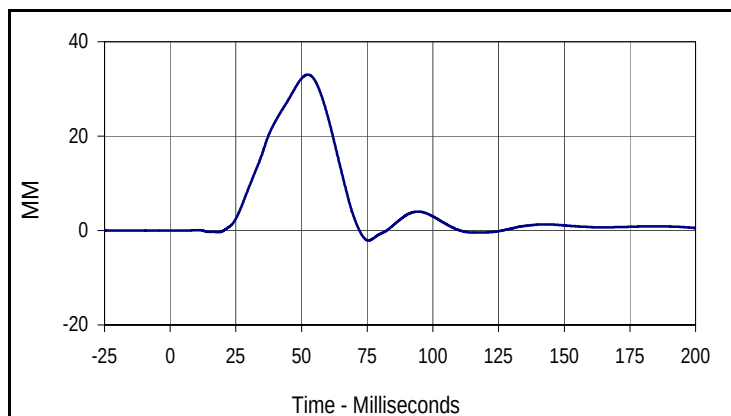
Curve Description			
Driver Upper Thorax Rib Deflection Y			
Plot No.	Type	SAE Class	Units
005	FIL	180	MM
Max	Time	Min	Time
33.0	52.4	-2.1	75.5



Curve Description			
Driver Middle Thorax Rib Deflection Y			
Plot No.	Type	SAE Class	Units
006	FIL	180	MM
Max	Time	Min	Time
26.0	52.2	-2.7	72.7



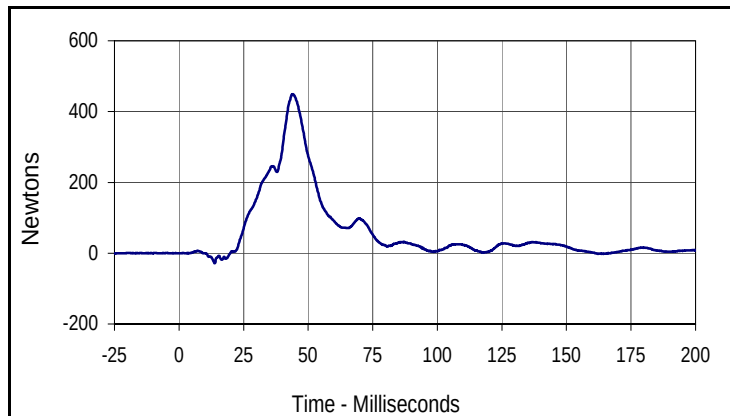
Curve Description			
Driver Lower Thorax Rib Deflection Y			
Plot No.	Type	SAE Class	Units
007	FIL	180	MM
Max	Time	Min	Time
25.7	50.4	-1.1	75.6



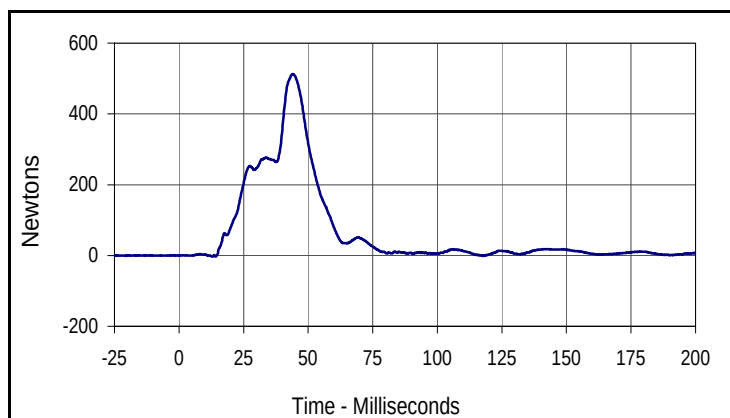
Curve Description			
Driver Thorax Rib Deflection Maximum			
Plot No.	Type	SAE Class	Units
010	FIL	180	MM
Max	Time	Min	Time
33.0	52.4	-2.1	75.5

Test Vehicle: 2012 Honda Civic LX 2-Door Coupe
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

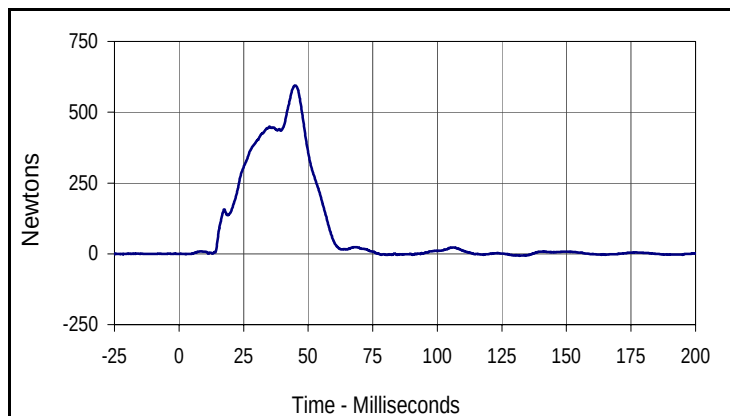
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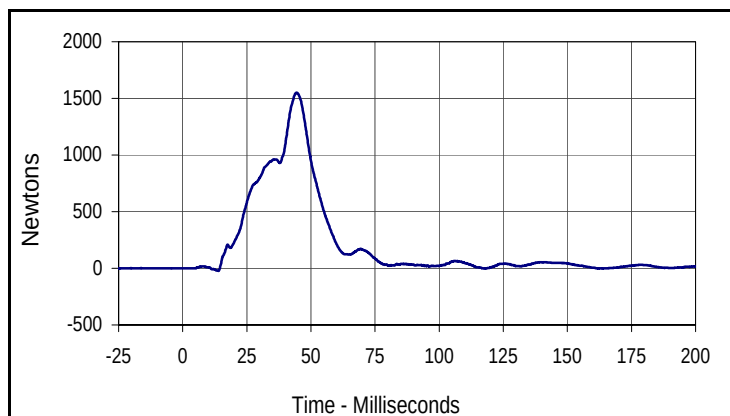
Curve Description			
Driver Anterior Abdominal Force Y			
Plot No.	Type	SAE Class	Units
008	FIL	600	Newtons
Max	Time	Min	Time
448.9	44.0	-28.4	13.8



Curve Description			
Driver Middle Abdominal Force Y			
Plot No.	Type	SAE Class	Units
009	FIL	600	Newtons
Max	Time	Min	Time
512.5	43.9	-3.3	14.1



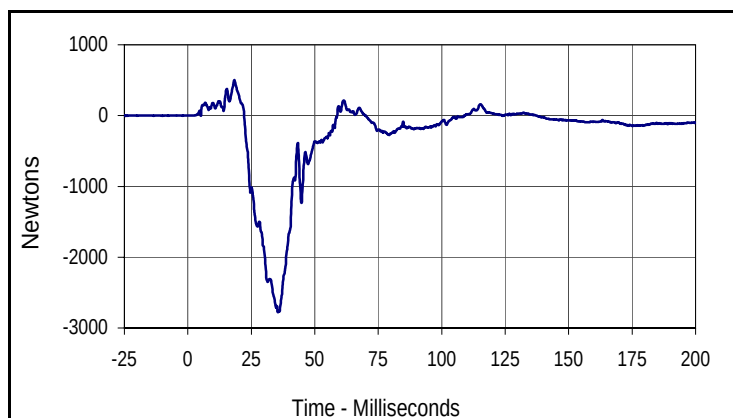
Curve Description			
Driver Posterior Abdominal Force Y			
Plot No.	Type	SAE Class	Units
011	FIL	600	Newtons
Max	Time	Min	Time
594.4	45.0	-6.6	131.8



Curve Description			
Driver Total Abdominal Force			
Plot No.	Type	SAE Class	Units
012	SUM	600	Newtons
Max	Time	Min	Time
1549.6	44.4	-23.6	13.9

Test Vehicle: 2012 Honda Civic LX 2-Door Coupe
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

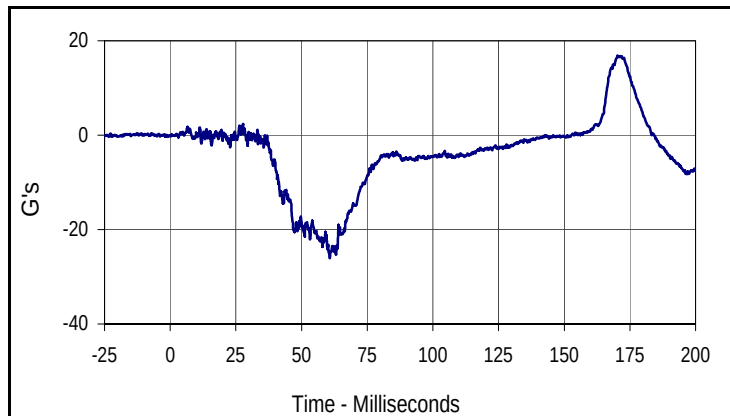
NHTSA No.: MC5311
 Test Date: 2/6/12



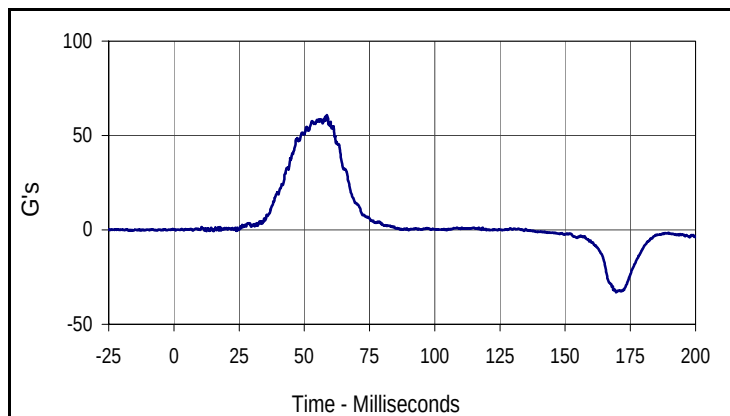
Curve Description			
Driver Pubic Symphysis Force Y			
Plot No.	Type	SAE Class	Units
013	FIL	600	Newtons
Max	Time	Min	Time
503.8	18.3	-2780.1	35.5

Test Vehicle: 2012 Honda Civic LX 2-Door Coupe
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

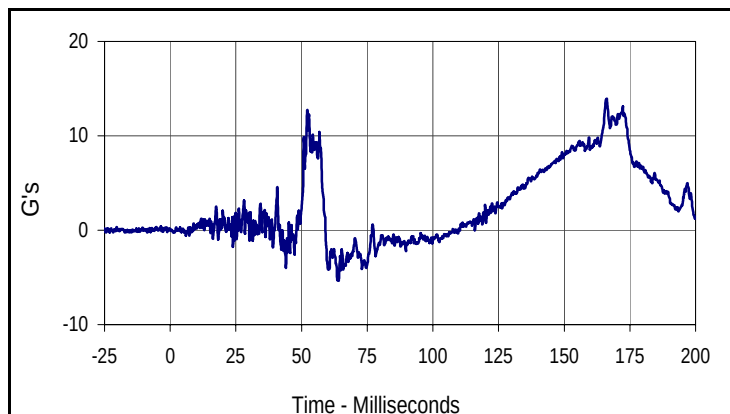
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 Test Date: 2/6/12



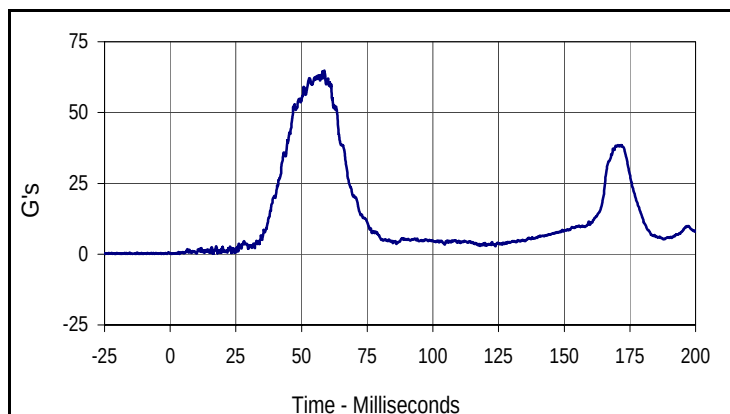
Curve Description			
Passenger Head Acceleration X Primary			
Plot No.	Type	SAE Class	Units
014	FIL	1000	G's
Max	Time	Min	Time
16.9	170.3	-26.0	60.8



Curve Description			
Passenger Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
015	FIL	1000	G's
Max	Time	Min	Time
60.8	58.7	-33.0	169.6



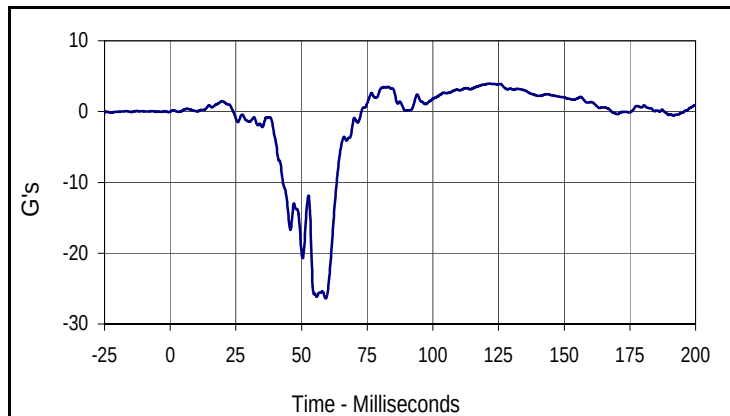
Curve Description			
Passenger Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
016	FIL	1000	G's
Max	Time	Min	Time
13.9	166.1	-5.4	64.2



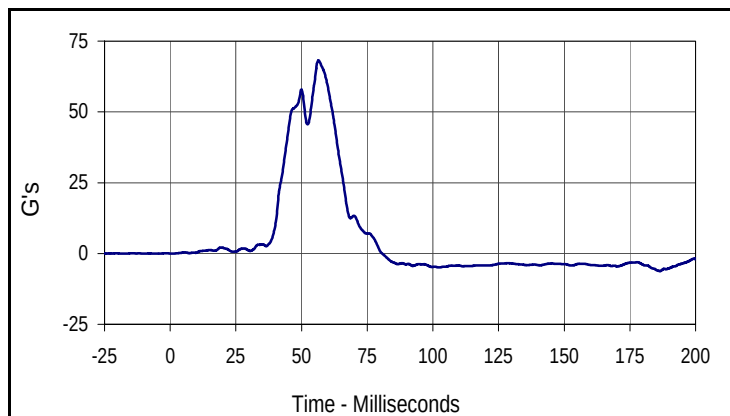
Curve Description			
Passenger Head Acceleration Resultant Primary			
Plot No.	Type	SAE Class	Units
017	RES	1000	G's
Max	Time	Min	Time
64.9	58.7	0.1	3.5

Test Vehicle: 2012 Honda Civic LX 2-Door Coupe
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

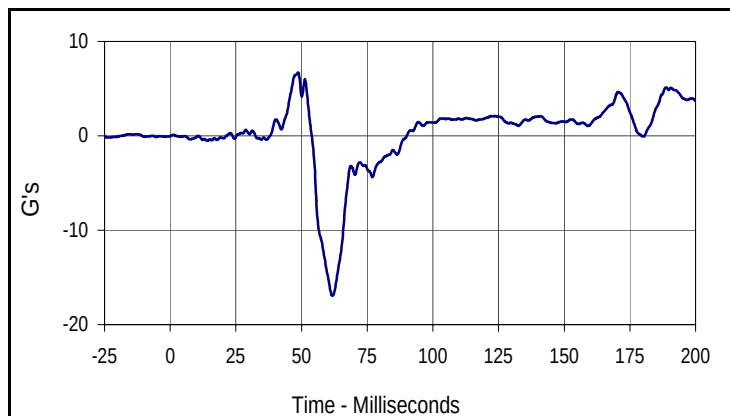
NHTSA No.: MC5311
 Test Date: 2/6/12



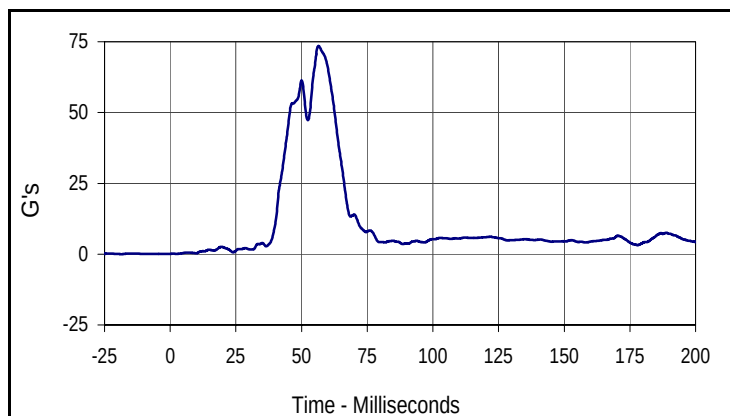
Curve Description			
Passenger Lower Spine T12 Acceleration X			
Plot No.	Type	SAE Class	Units
019	FIL	180	G's
Max	Time	Min	Time
3.9	121.8	-26.4	59.1



Curve Description			
Passenger Lower Spine T12 Acceleration Y			
Plot No.	Type	SAE Class	Units
020	FIL	180	G's
Max	Time	Min	Time
68.2	56.5	-6.2	186.5



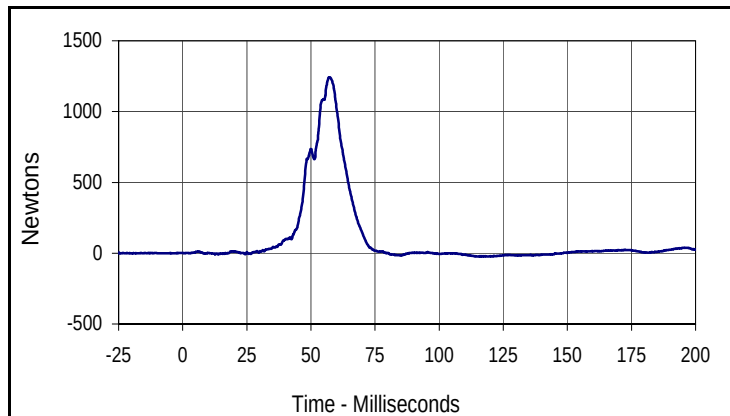
Curve Description			
Passenger Lower Spine T12 Acceleration Z			
Plot No.	Type	SAE Class	Units
021	FIL	180	G's
Max	Time	Min	Time
6.7	48.7	-16.9	61.8



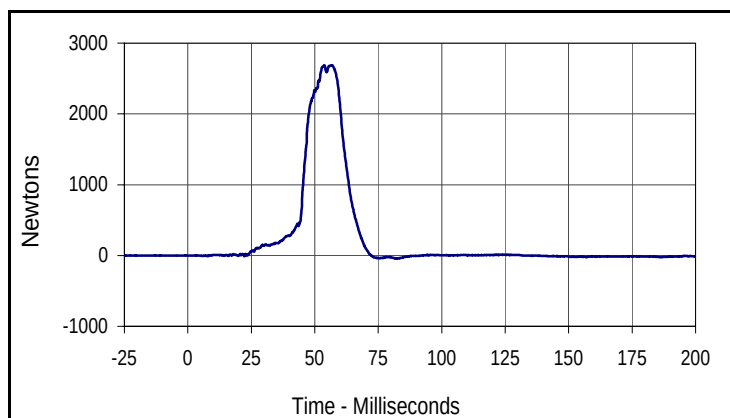
Curve Description			
Passenger Lower Spine T12 Acceleration Res.			
Plot No.	Type	SAE Class	Units
022	RES	180	G's
Max	Time	Min	Time
73.5	56.5	0.0	0.1

Test Vehicle: 2012 Honda Civic LX 2-Door Coupe
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

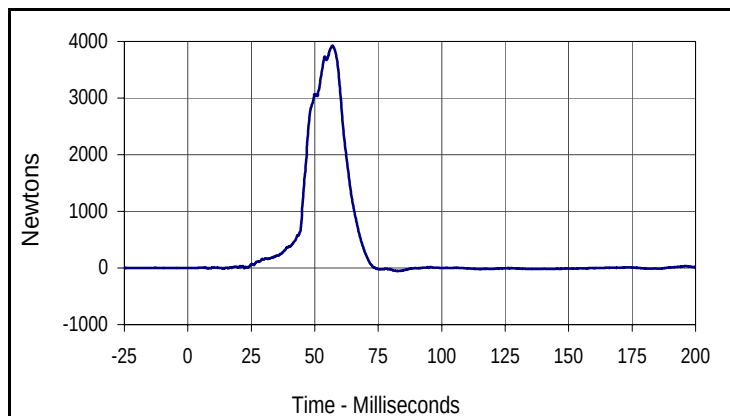
NHTSA No.: MC5311
 Test Date: 2/6/12



Curve Description			
Passenger Iliac Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
023	FIL	600	Newtons
Max	Time	Min	Time
1242.5	57.4	-24.1	114.4



Curve Description			
Passenger Acetabulum Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
024	FIL	600	Newtons
Max	Time	Min	Time
2690.3	53.7	-44.2	82.2



Curve Description			
Passenger Total Pelvic Force			
Plot No.	Type	SAE Class	Units
018	SUM	600	Newtons
Max	Time	Min	Time
3925.1	56.9	-54.4	82.6

APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

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

Test Program: ES2re External Measurements
 ATD Serial No.: F037

Test Date: 1/26/12
 Test I.D.: N/A



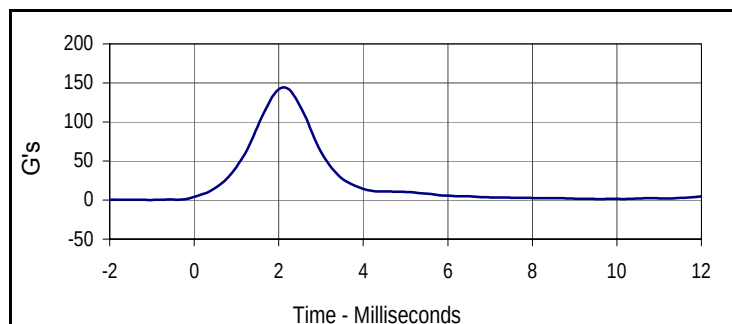
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity		%	10 to 70	33	Pass
1	Sitting Height	mm	900 - 918	910	Pass
2	Seat to Shoulder Joint	mm	558 - 572	564	Pass
3	Seat to Lower Face of Thoracic Spine Box	mm	346 - 356	350	Pass
4	Seat to Hip Joint (Center of Bolt)	mm	97 - 103	101	Pass
5	Sole to Seat, Sitting	mm	333 - 451	384	Pass
6	Head Width	mm	152 - 158	156	Pass
7	Shoulder / Arm Width	mm	461 - 479	471	Pass
8	Thorax Width	mm	322 - 332	328	Pass
9	Abdomen Width	mm	273 - 287	280	Pass
10	Pelvis Lap Width	mm	359 - 373	361	Pass
11	Head Depth	mm	196 - 206	201	Pass
12	Thorax Depth	mm	262 - 272	270	Pass
13	Abdomen Width	mm	194 - 204	199	Pass
14	Pelvis Depth	mm	235 - 245	240	Pass
15	Back of Buttocks to Hip Joint (Center of Bolt)	mm	150 - 160	155	Pass
16	Back of Buttocks to Front Knee	mm	597 - 615	609	Pass
Overall Test Results					Pass

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

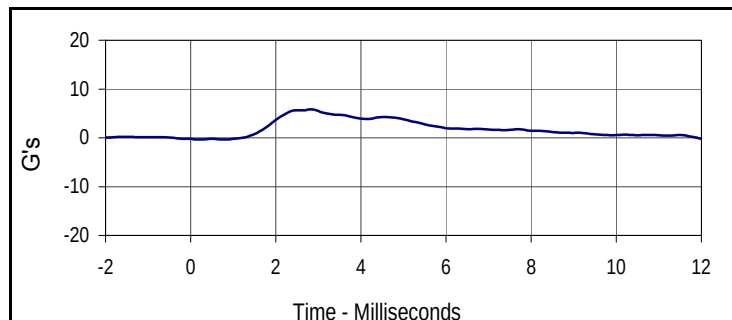
Test Date: 1/26/12
 Test I.D.: F037HD018



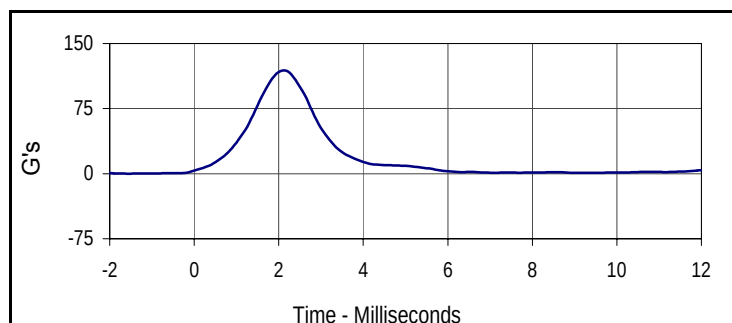
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	250	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	34.0	Pass
	Min		29.0	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	31.2	Pass
Peak Head Resultant Acceleration	G's	125 to 155	144.1	Pass
Peak Head X Acceleration	G's	≤15	5.8	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	9.9	Pass
Overall Test Results				Pass



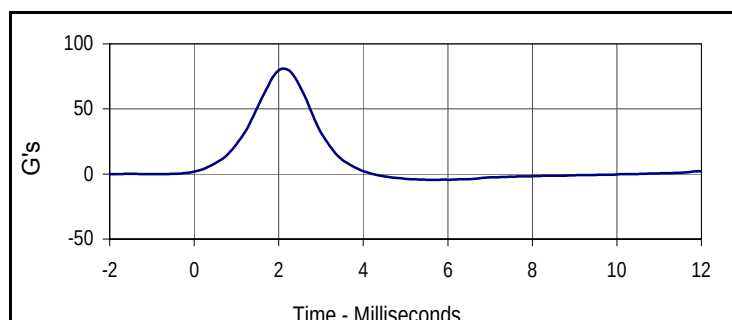
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
144.1	2.1	0.2	-1.0



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
5.8	2.8	-0.4	0.8



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
119.1	2.1	-0.1	-1.5



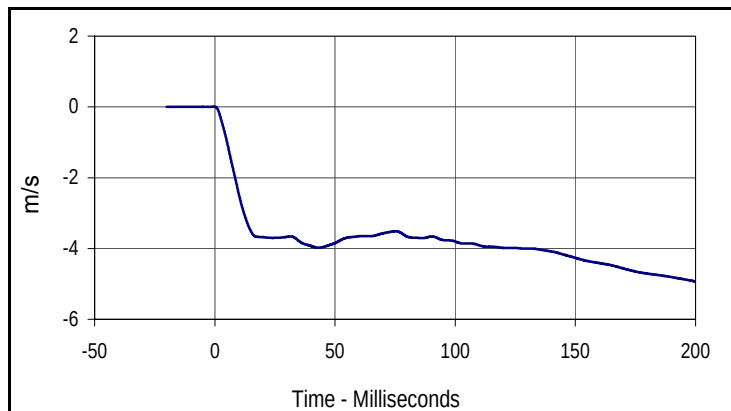
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
81.0	2.1	-4.5	5.6

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

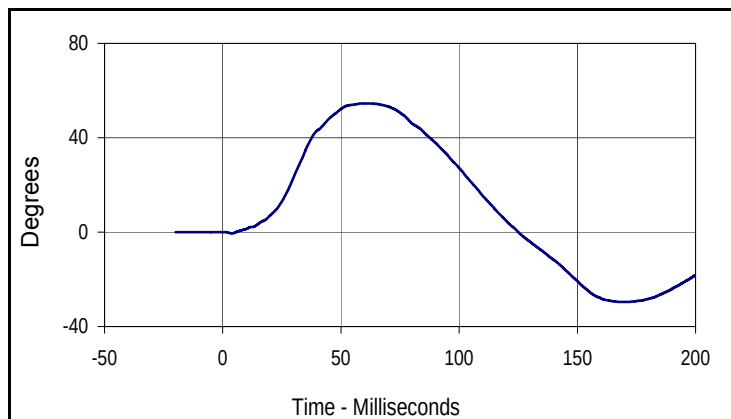
Test Date: 1/26/12
 Test I.D.: F037NB018



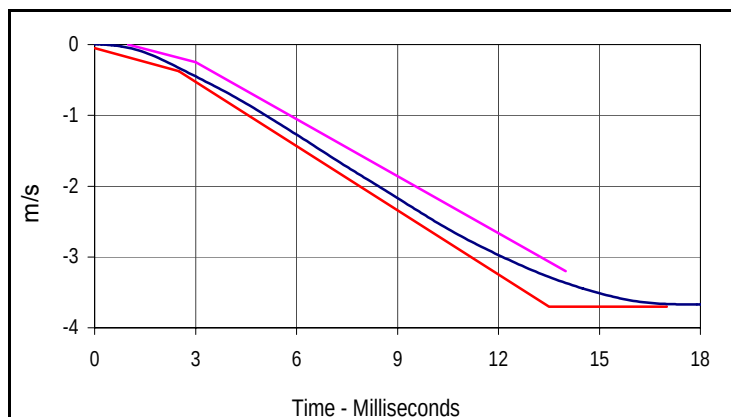
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	270	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	34.0	Pass
	Min		29.0	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	20.8	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.8	Pass
Pendulum Velocity	m/s	3.3 to 3.5	3.5	Pass
Headform Flexion	Max	49 to 59	54.6	Pass
	Time	54 to 66	59.1	Pass
Headform Flexion Decay (Peak to Zero)	msec	53 to 88	65.9	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	-0.4	-4.9	200.0



Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	180	Degrees
Max	Time	Min	Time
54.6	59.1	-29.6	169.7



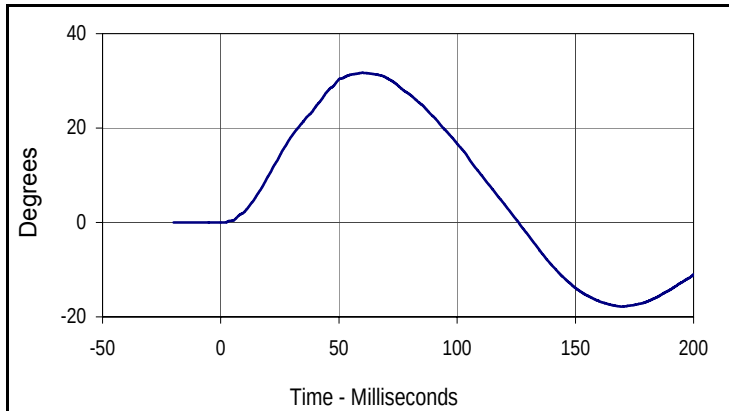
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.4	-4.9	200.0

Velocity Corridors

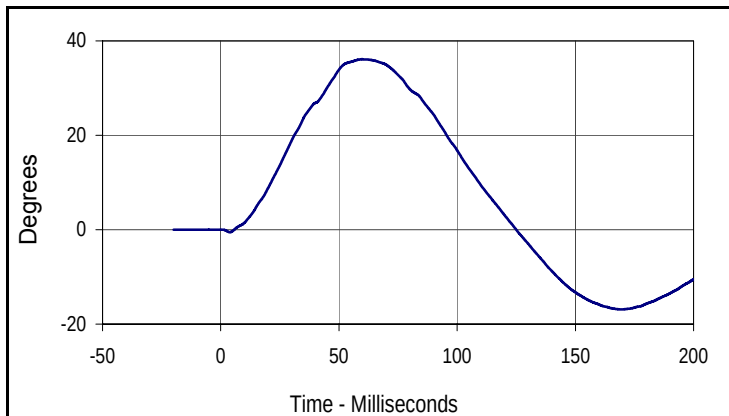
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.0	-0.03	2.5	-0.375
14.0	-3.20	13.5	-3.70
		17.0	-3.70

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

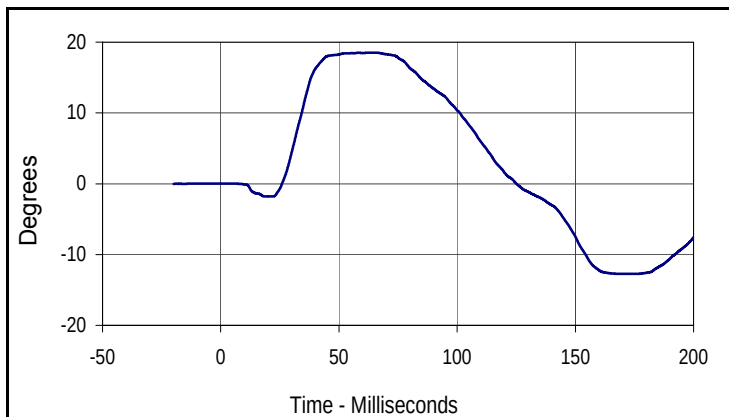
Test Date: 1/26/12
 Test I.D.: F037NB018



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
003	FIL	180	Degrees
Max	Time	Min	Time
31.7	59.9	-17.8	169.6



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
004	FIL	180	Degrees
Max	Time	Min	Time
36.1	59.8	-16.9	170.0



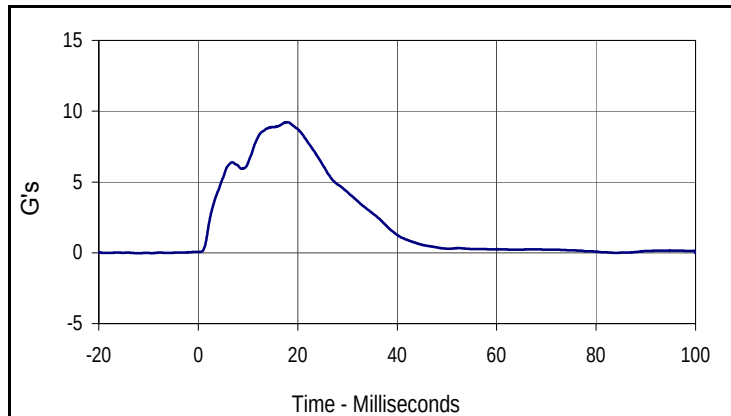
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
005	FIL	180	Degrees
Max	Time	Min	Time
18.5	64.9	-12.7	169.4

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

Test Date: 1/26/12
 Test I.D.: F037SH018



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	310	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	34.0	Pass
	Min		29.0	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	31.2	Pass
Pendulum Speed	m/s	4.2 to 4.4	4.3	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	9.2	Pass
Overall Test Results				Pass



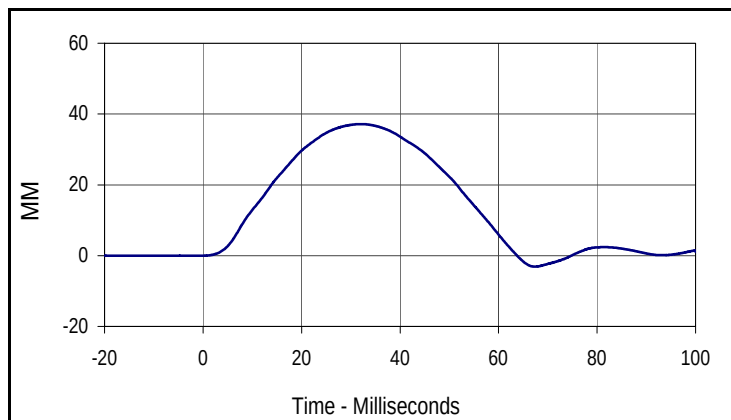
Curve Description			
Impact Acceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
9.2	17.9	0.0	-12.4

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

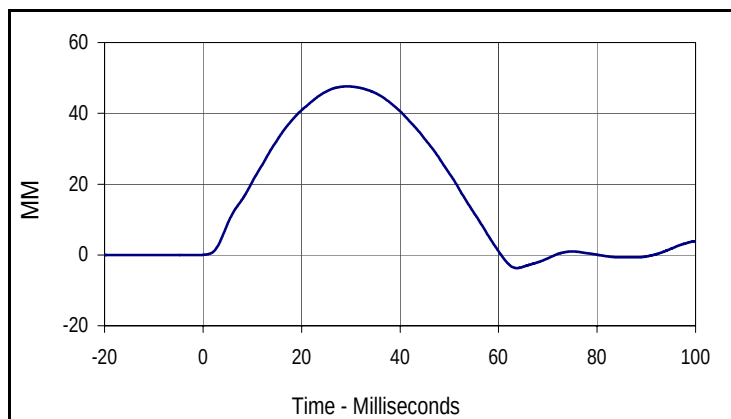
Test Date: 1/26/12
 Test I.D.: F037RB1018



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	350	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	34.0	Pass
	Min		29.0	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	20.8	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.0	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	37.2	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	47.6	Pass
Overall Test Results				Pass



Curve Description			
Upper Rib Deflection (459 mm Drop Height)			
Plot No.	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
37.2	32.1	-3.1	67.4



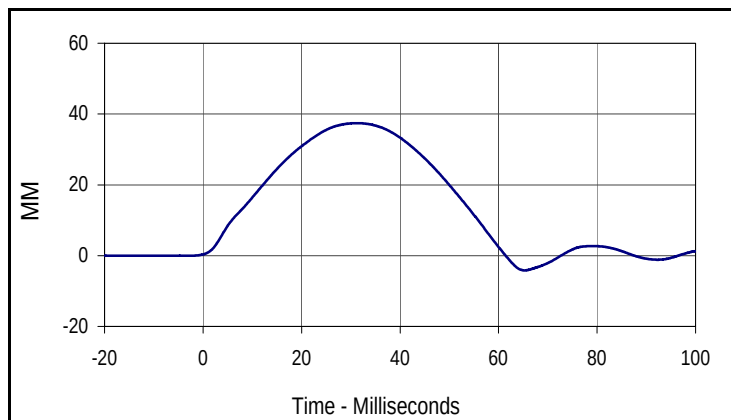
Curve Description			
Upper Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
47.6	29.3	-3.7	63.7

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

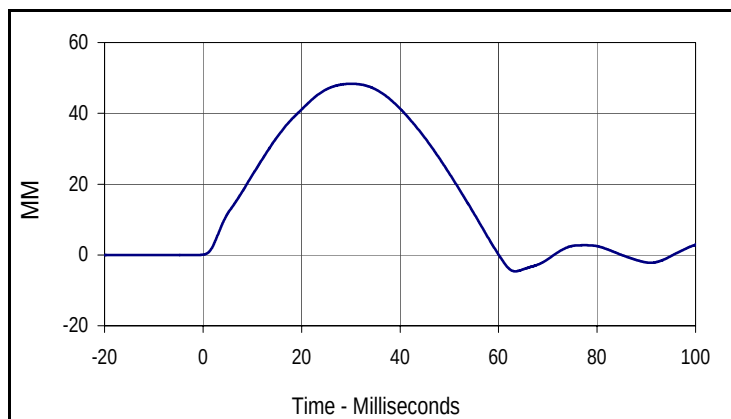
Test Date: 1/26/12
 Test I.D.: F037RB2018



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	360	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	34.0	Pass
	Min		29.0	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.6	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.4	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	37.4	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	48.4	Pass
Overall Test Results				Pass



Curve Description			
Middle Rib Deflection (459 mm Drop Height)			
Plot No.	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
37.4	31.3	-4.2	65.3



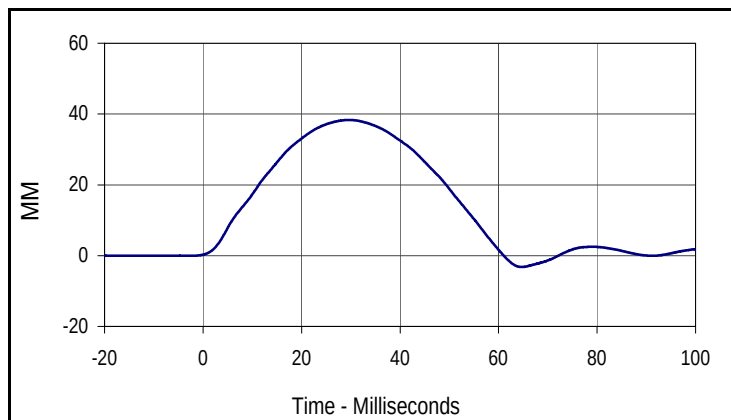
Curve Description			
Middle Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
48.4	30.1	-4.6	63.4

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

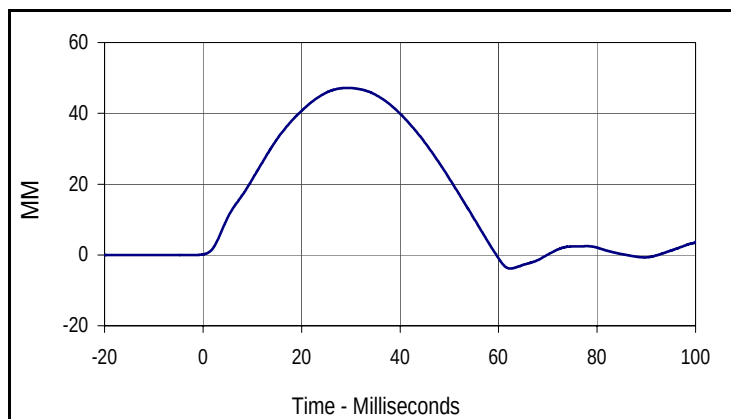
Test Date: 1/26/12
 Test I.D.: F037RB3018



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	390	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	34.0	Pass
	Min		29.0	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.9	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	38.3	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	47.2	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
38.3	29.6	-3.2	64.7



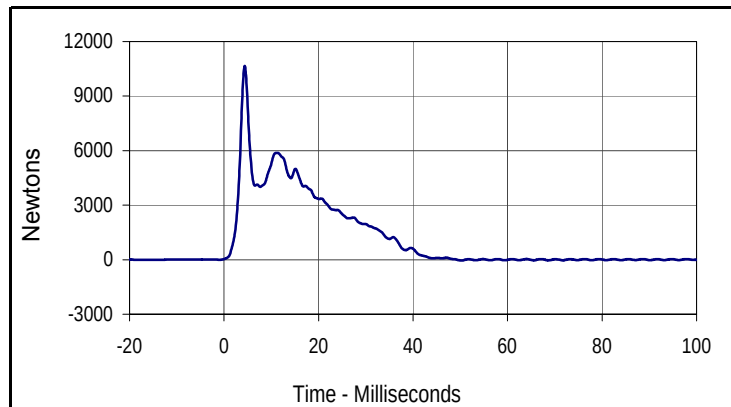
Curve Description			
Lower Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
47.2	29.4	-3.8	62.4

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

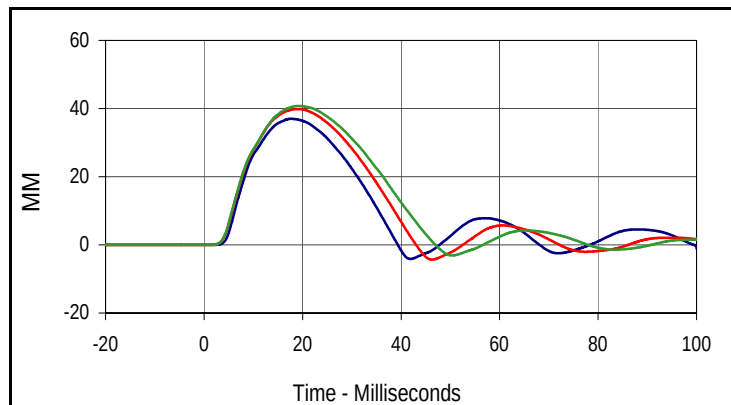
Test Date: 1/26/12
 Test I.D.: F037TH018



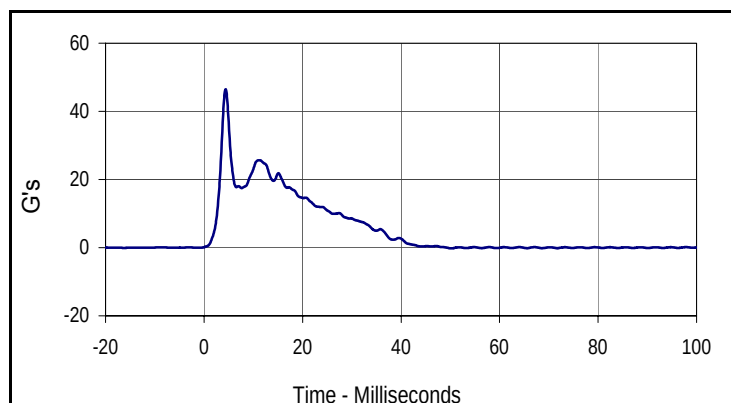
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	400	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	34.0	Pass
	Min		29.0	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.6	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	31.7	Pass
Peak Impactor Velocity	m/s	5.4 to 5.6	5.6	Pass
Peak Impactor Force	N	5100 to 6200	5879.2	Pass
	msec	> 6.0 msec	11.3	Pass
Peak Upper Rib Deflection	mm	34 to 41	37.0	Pass
Peak Middle Rib Deflection	mm	37 to 45	39.8	Pass
Peak Lower Rib Deflection	mm	37 to 44	40.8	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
10653.2	4.4	-44.7	50.3



Curve Description			
Upper, Middle, Lower Rib Deflections			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max (Upper)	Time	Min (Upper)	Time
37.0	17.7	-4.1	41.9
Max (Middle)	Time	Min (Middle)	Time
39.8	19.1	-4.3	46.3
Max (Lower)	Time	Min (Lower)	Time
40.8	19.3	-3.1	50.4



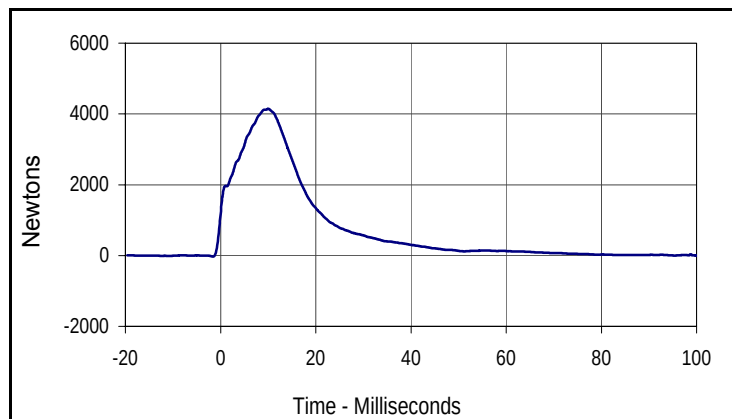
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
46.5	4.4	-0.2	50.3

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

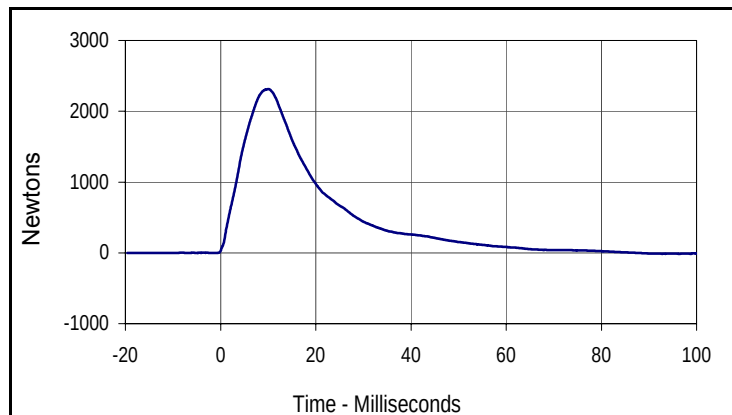
Test Date: 1/26/12
 Test I.D.: F037ABD018



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	420	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	34.0	Pass
	Min		29.0	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.6	Pass
Probe Velocity	m/s	3.9 to 4.1	3.9	Pass
Peak Impactor Force	N	4000 to 4800	4142.6	Pass
	msec	10.6 to 13.0	11.4	Pass
Sum of Abdominal Forces	N	2200 to 2700	2314.0	Pass
	msec	10.0 to 12.3	11.5	Pass
Overall Test Results				Pass



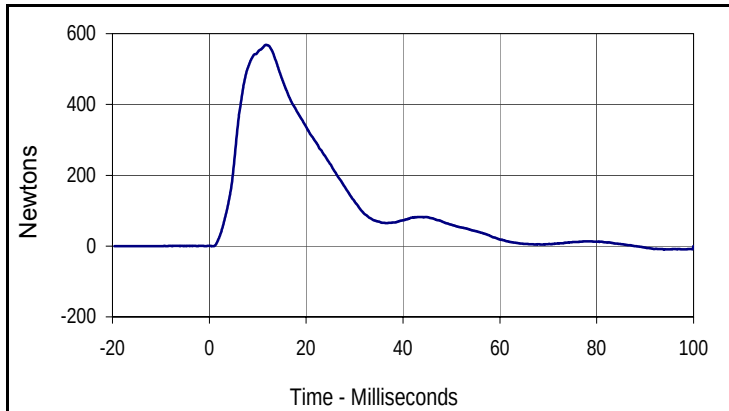
Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
4142.6	11.4	-28.1	-0.2



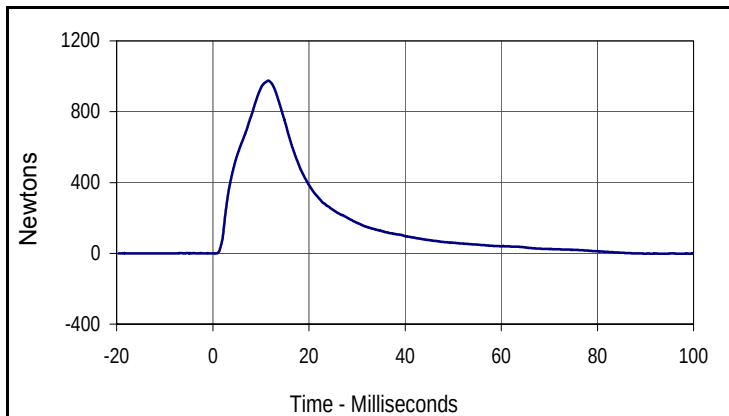
Curve Description			
Abdomen Sum Resultant			
Plot No.	Type	SAE Class	Units
002	RES	600	Newtons
Max	Time	Min	Time
2314.0	11.5	-13.6	100.0

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

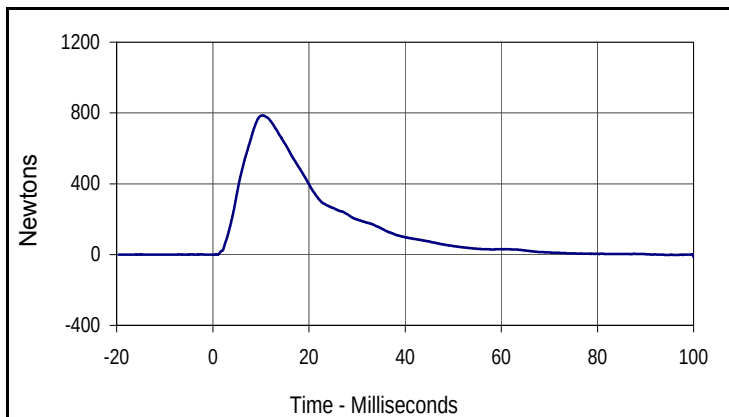
Test Date: 1/26/12
 Test I.D.: F037ABD018



Curve Description			
Front Abdomen Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
568.8	11.7	-9.5	95.0



Curve Description			
Middle Abdomen Force			
Plot No.	Type	SAE Class	Units
004	FIL	600	Newtons
Max	Time	Min	Time
975.3	11.6	-8.5	101.6



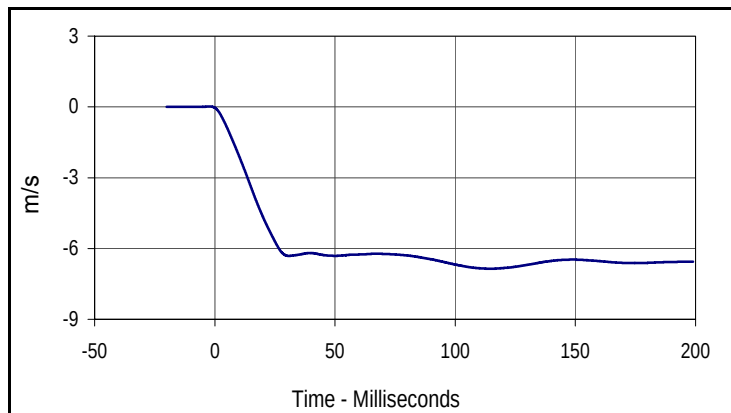
Curve Description			
Rear Abdomen Force			
Plot No.	Type	SAE Class	Units
005	FIL	600	Newtons
Max	Time	Min	Time
786.1	10.3	-13.2	100.0

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

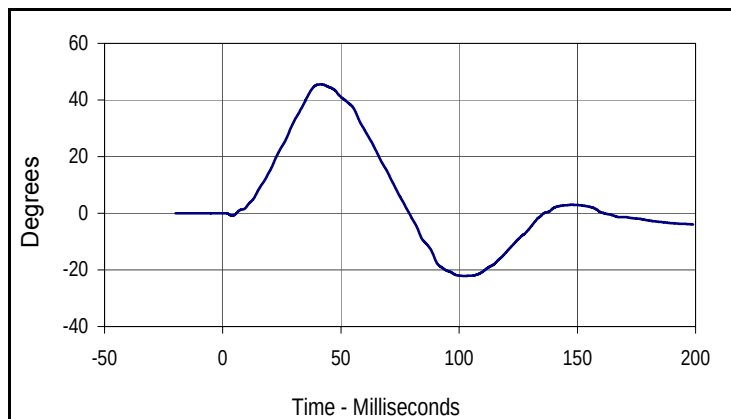
Test Date: 1/26/12
 Test I.D.: F037LB018



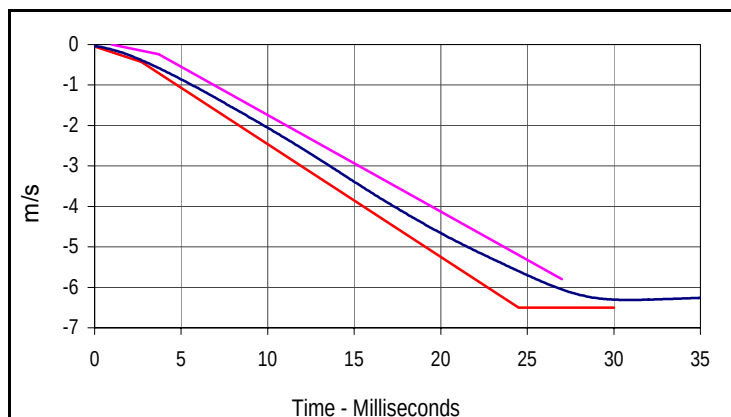
Tested Parameter	Units	Specification	Result	Pass/Fail
Lumbar Spine Assembly Soak Time	Minutes	≥240	360	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	34.0	Pass
	Min		29.0	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.9	Pass
Pendulum Velocity	m/s	5.95 to 6.15	6.10	Pass
Headform Rotation	Max	45 to 55	45.5	Pass
	Time	39 to 53	41.4	Pass
Time of Decay to Zero Angle from Peak	msec	37 to 57	37.5	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	-2.2	-6.9	114.8



Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	180	Degrees
Max	Time	Min	Time
45.5	41.4	-22.2	102.4



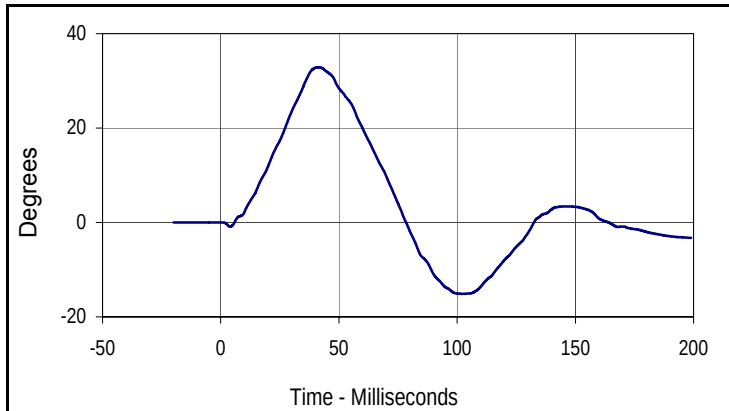
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-2.2	-6.9	114.8

Velocity Corridors

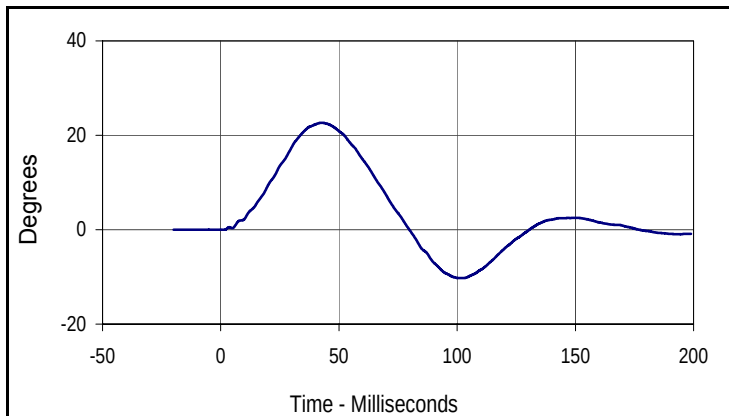
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.7	-0.24	2.7	-0.425
27.0	-5.80	24.5	-6.50
		30.0	-6.50

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

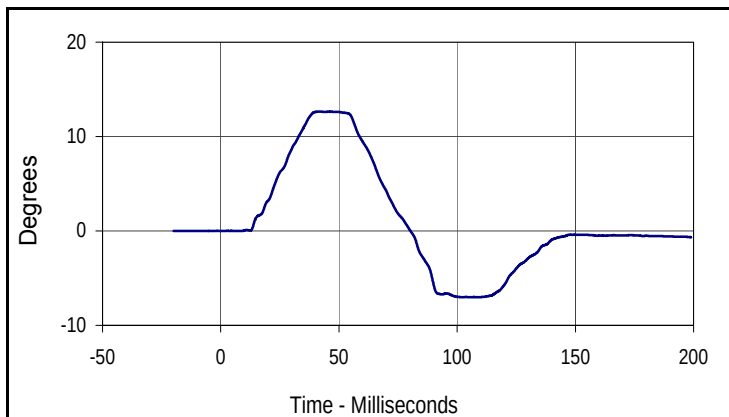
Test Date: 1/26/12
 Test I.D.: F037LB018



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
003	FIL	180	Degrees
Max	Time	Min	Time
32.9	41.1	-15.1	102.6



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
004	FIL	180	Degrees
Max	Time	Min	Time
22.6	42.6	-10.3	102.5



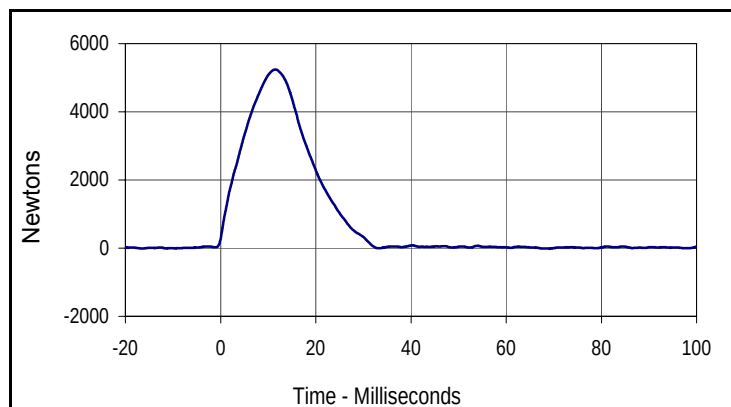
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
005	FIL	180	Degrees
Max	Time	Min	Time
12.7	41.8	-7.0	102.0

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

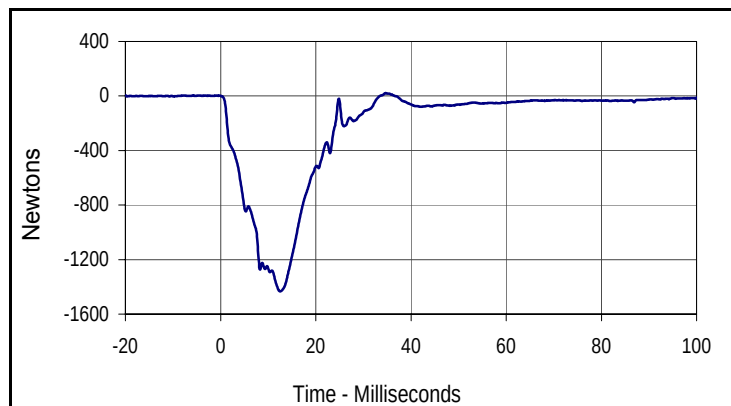
Test Date: 1/26/12
 Test I.D.: F037PL018



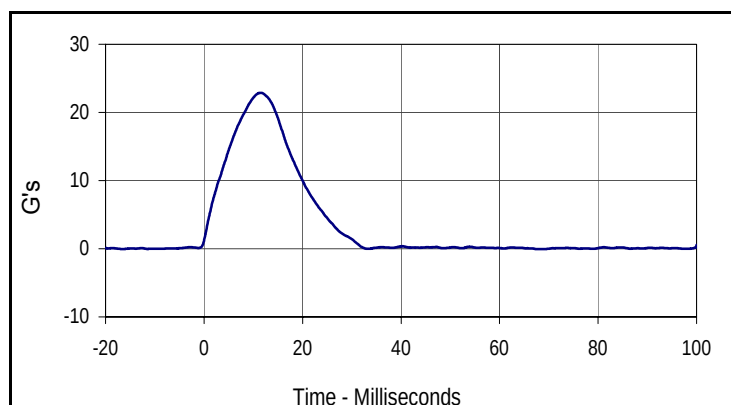
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	490	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	34.0	Pass
	Min		29.0	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	32.2	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.3	Pass
Peak Impactor Force	N	4700 to 5400	5234.1	Pass
	msec	11.8 to 16.1	11.8	Pass
Peak Pubic Symphysis Load	N	-1230 to -1590	-1432.9	Pass
	msec	12.2 to 17.0	12.6	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
5239.3	11.6	-15.7	69.1



Curve Description			
Pubic Symphysis Force Y			
Plot No.	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
21.0	34.7	-1432.9	12.6



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
22.9	11.6	-0.1	69.1

Test Program: SID IIs External Measurements
 ATD Serial No.: 307

Test Date: 2/3/12
 Test I.D.: N/A



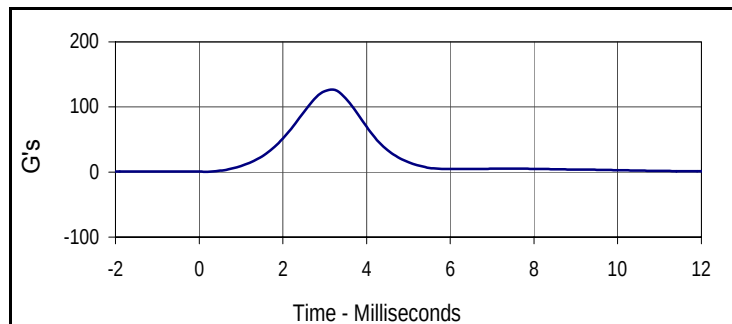
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity		%	10 to 70	32	Pass
A	Sitting Height	mm	772 - 788	780	Pass
B	Shoulder Pivot Height	mm	437 - 453	446	Pass
C	H-Point Height	mm	79 - 89	83	Pass
D	H-Point from Seatback	mm	141 - 151	145	Pass
E	Shoulder Pivot from Backline	mm	97 - 107	103	Pass
F	Thigh Clearance	mm	119 - 135	126	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	183	Pass
J	Head Circumference	mm	541 - 551	546	Pass
K	Buttock to Knee Length	mm	514 - 540	527	Pass
L	Popliteal Height	mm	343 - 369	349	Pass
M	Knee Pivot to Floor Height	mm	392 - 409	400	Pass
N	Buttock Popliteal Length	mm	416 - 442	431	Pass
O	Chest Depth w/o Jacket	mm	195 - 211	205	Pass
P	Foot Length	mm	216 - 232	221	Pass
Q	Hip Breadth with Pelvic Plug	mm	313 - 323	318	Pass
R	Arm Length	mm	249 - 259	252	Pass
S	Knee Joint to Seatback	mm	477 - 493	481	Pass
V	Shoulder Width	mm	341 - 357	351	Pass
W	Foot Width	mm	78 - 94	89	Pass
Y	Chest Circumference with Jacket	mm	851 - 881	875	Pass
Z	Waist Circumference	mm	760 - 791	774	Pass
Overall Test Results					Pass

Test Program: SID IIs Head Drop Test
 ATD Serial No.: 307

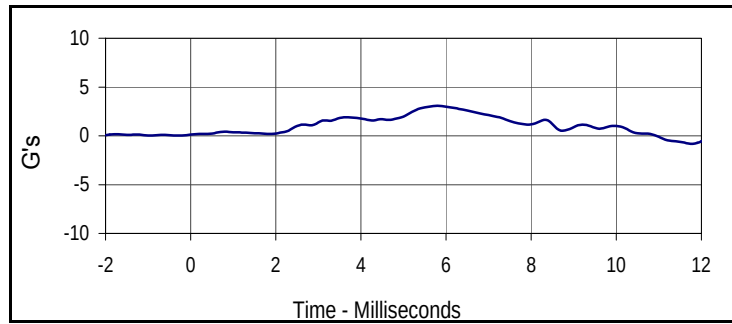
Test Date: 2/3/12
 Test I.D.: 307HD029



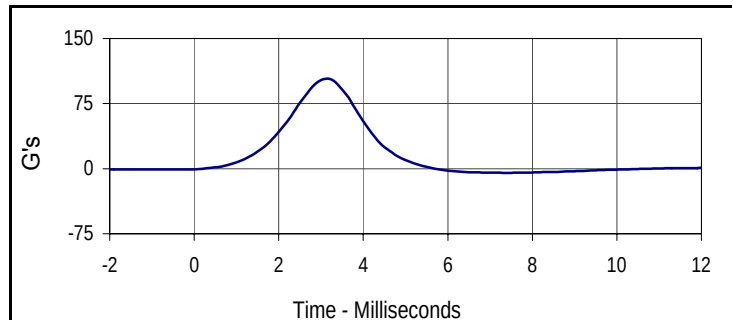
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	250	Pass
Temperature During Soak	Max	18.9 to 25.6	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	34.0	Pass
	Min		28.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	20.8	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.0	Pass
Peak Head Resultant Acceleration	G's	115 to 137	126.8	Pass
Peak Head X Acceleration	G's	<15	3.1	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	12.0	Pass
Overall Test Results				Pass



Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
126.8	3.2	0.3	0.2



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
3.1	5.8	0.0	-0.3



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
103.5	3.2	-4.8	7.4



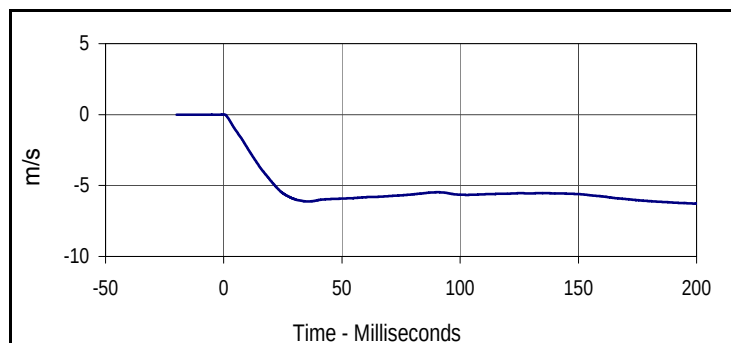
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
73.2	3.2	-2.8	9.7

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

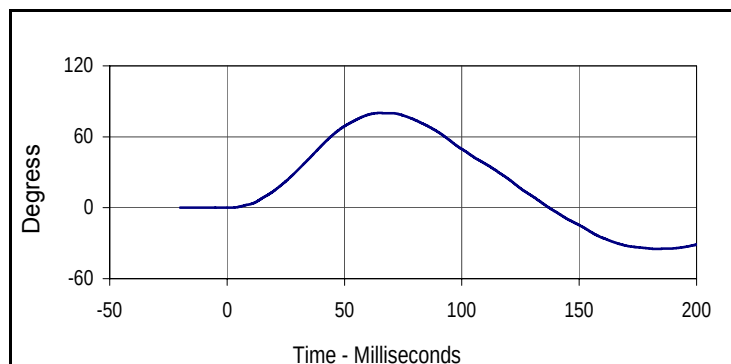
Test Date: 2/3/12
 Test I.D.: 307NB029



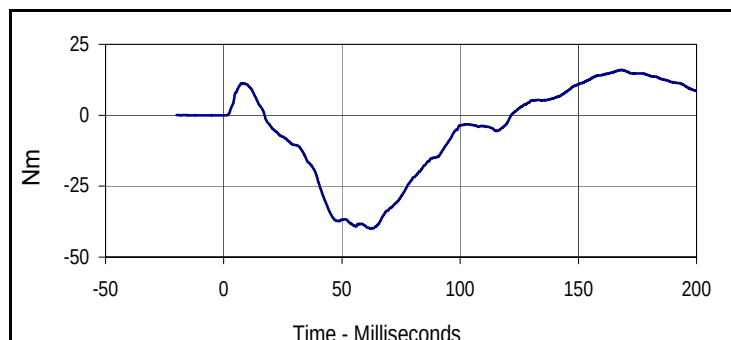
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	340	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.7	Pass
	Min	°C		20.7	Pass
Humidity During Soak	Max	%	10.0 to 70.0	34.0	Pass
	Min	%		28.0	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.1	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	33.6	Pass
Pendulum Velocity		m/s	5.51 to 5.63	5.60	Pass
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.35	Pass
	15 msec	m/s	-3.30 to -4.10	-3.63	Pass
	20 msec	m/s	-4.40 to -5.40	-4.68	Pass
	25 msec	m/s	-5.40 to -6.10	-5.54	Pass
	25-100 msec	m/s	-5.50 to -6.20	-6.13	Pass
D-Plane Rotation	Max	Degrees	71 to 81	80.1	Pass
	Time	msec	50 to 70	64.9	Pass
Peak Occipital Condyle Moment		Nm	-36 to -44	-40.0	Pass
Decaying Moment Time to Cross 0 Nm		msec	102 to 126	121.6	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	-0.2	-6.3	200.0



Curve Description			
Maximum Translation Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degress
Max	Time	Min	Time
80.1	64.9	-34.8	182.6



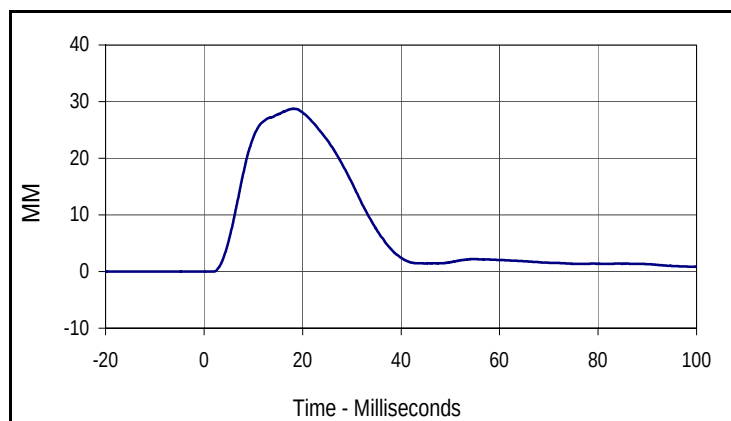
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
16.0	168.3	-40.0	61.9

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

Test Date: 2/3/12
 Test I.D.: 307SH029



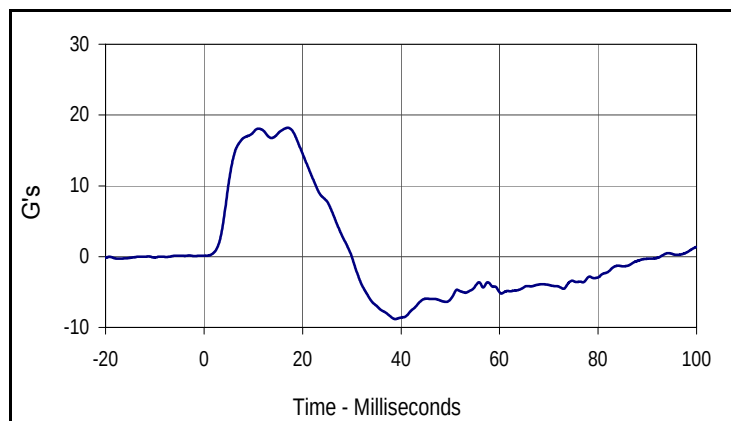
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥180	210	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.7	Pass
	Min	°C		20.7	Pass
Humidity During Soak	Max	%	10.0 to 70.0	34.0	Pass
	Min	%		28.0	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.1	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	28.3	Pass
Impactor Velocity		m/s	4.20 to 4.40	4.33	Pass
Peak Shoulder Deflection		mm	28 to 37	28.7	Pass
Peak Lateral Spine Acceleration Y		G's	17 to 22	18.2	Pass
Peak Impactor Acceleration		G's	13 to 18	16.3	Pass
Overall Test Results				Pass	



Curve Description

Shoulder Acceleration

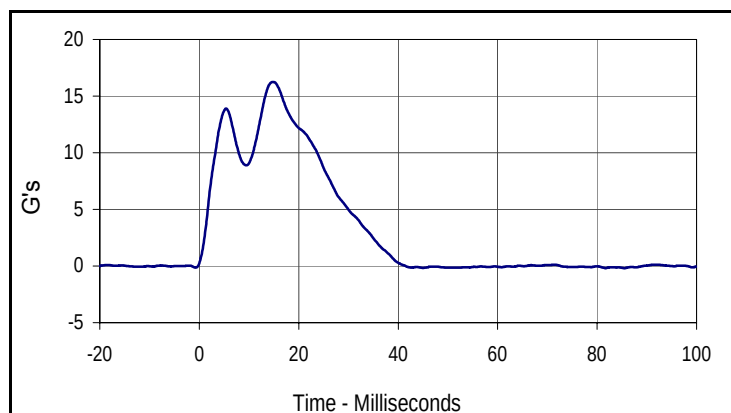
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
28.7	18.2	0.0	-6.1



Curve Description

Upper Spine Y Acceleration

Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
18.2	17.0	-8.8	38.8



Curve Description

Impactor Acceleration

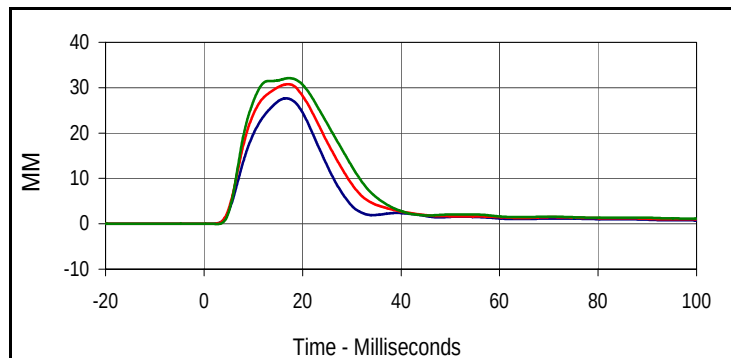
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
16.3	14.8	-0.2	85.5

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

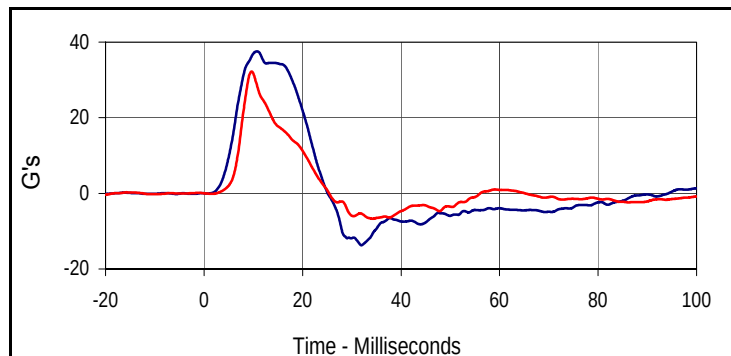
Test Date: 2/3/12
 Test I.D.: 307TWA029



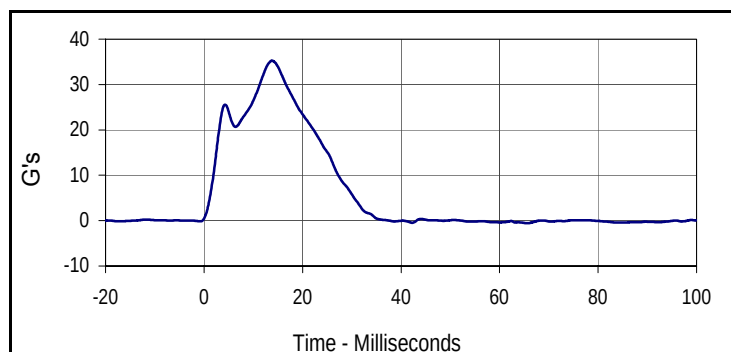
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	240	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	34.0	Pass
	Min		28.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	28.9	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.7	Pass
Peak Shoulder Deflection	mm	31 to 40	34.5	Pass
Peak Upper Thorax Rib Deflection	mm	25 to 32	27.6	Pass
Peak Middle Thorax Rib Deflection	mm	30 to 36	30.8	Pass
Peak Lower Thorax Rib Deflection	mm	32 to 38	32.1	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	37.5	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	32.2	Pass
Peak Impactor Acceleration	G's	30 to 36	35.2	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
27.6	16.7	0.0	-15.2
Middle Thorax Deflection			
Max	Time	Min	Time
30.8	17.1	0.0	1.6
Lower Thorax Deflection			
Max	Time	Min	Time
32.1	17.3	0.0	2.7



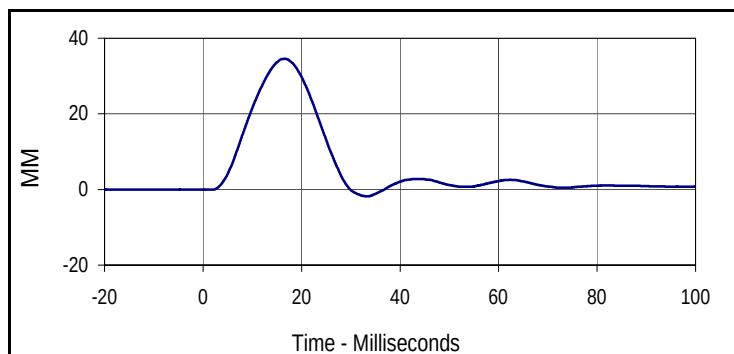
Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
37.5	10.8	-13.7	32.0
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
32.2	9.6	-6.7	34.2



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
35.2	13.8	-0.6	65.7

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

Test Date: 2/3/12
 Test I.D.: 307TWA029



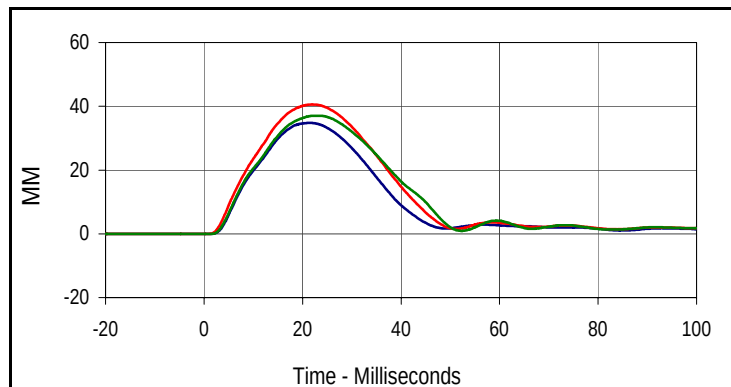
Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
007	FIL	600	MM
Max	Time	Min	Time
34.5	16.6	-1.8	33.6

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

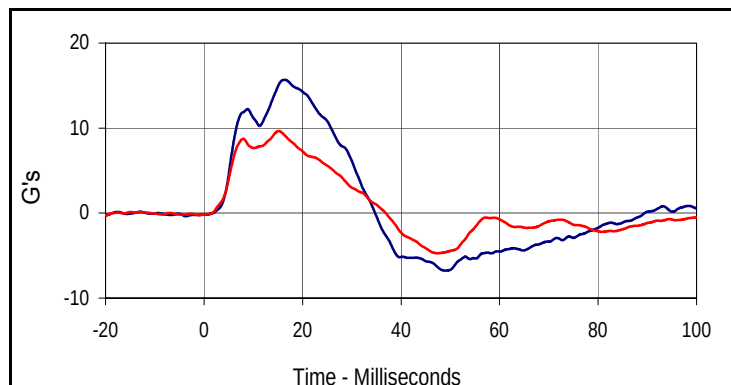
Test Date: 2/3/12
 Test I.D.: 307TWOA029



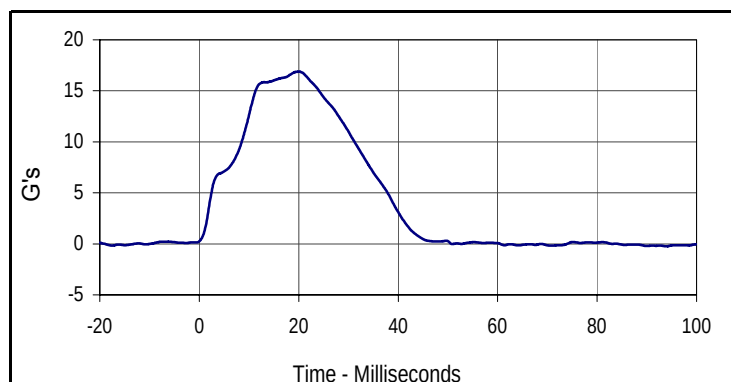
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥180	260	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.7	Pass
	Min	°C		20.7	Pass
Humidity During Soak	Max	%	10.0 to 70.0	34.0	Pass
	Min	%		28.0	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	30.1	Pass
Impactor Velocity		m/s	4.2 to 4.4	4.3	Pass
Peak Upper Thorax Rib Deflection		mm	32 to 40	34.8	Pass
Peak Middle Thorax Rib Deflection		mm	39 to 45	40.6	Pass
Peak Lower Thorax Rib Deflection		mm	35 to 43	37.0	Pass
Peak Upper Spine Y Acceleration		G's	13 to 17	15.7	Pass
Peak Lower Spine Y Acceleration		G's	7 to 11	9.7	Pass
Peak Impactor Acceleration		G's	14 to 18	16.9	Pass
Overall Test Results				Pass	



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
34.8	21.4	0.0	-12.1
Middle Thorax Deflection			
Max	Time	Min	Time
40.6	22.0	0.0	-15.9
Lower Thorax Deflection			
Max	Time	Min	Time
37.0	22.9	0.0	-14.9



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.7	16.4	-6.8	48.9
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
9.7	15.1	-4.7	47.3



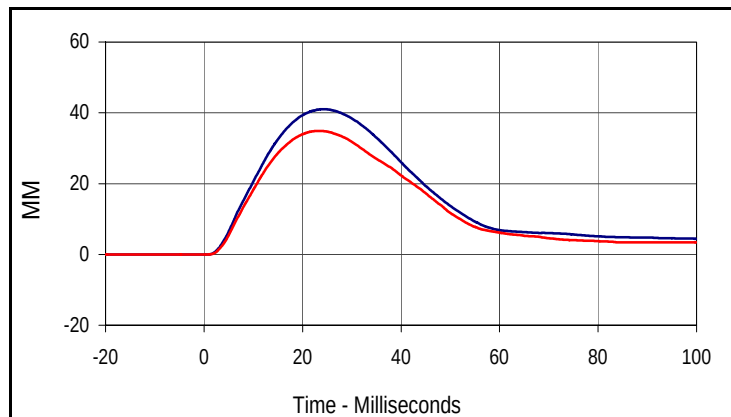
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
16.9	20.0	-0.2	93.8

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

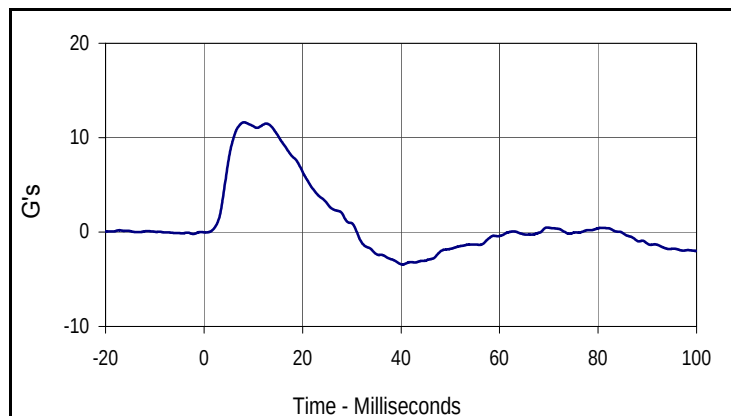
Test Date: 2/3/12
 Test I.D.: 307ABD029



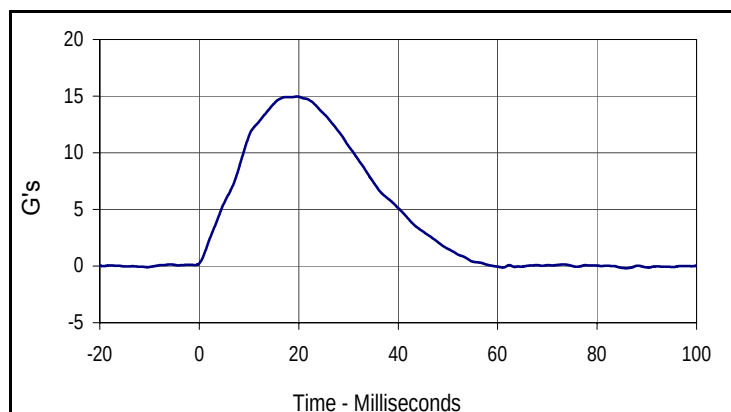
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	270	Pass
Temperature During Soak	Max °C	20.6 to 22.2	21.7	Pass
	Min °C		20.7	Pass
Humidity During Soak	Max %	10.0 to 70.0	34.0	Pass
	Min %		28.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	20.9	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.1	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.3	Pass
Peak Upper Abdominal Rib Deflection	mm	36 to 47	41.0	Pass
Peak Lower Abdominal Rib Deflection	mm	33 to 44	34.9	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	11.6	Pass
Peak Impactor Acceleration	G's	12 to 16	15.0	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
41.0	24.4	0.0	-15.5
Curve Description			
Lower Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
34.9	23.3	0.0	-19.5



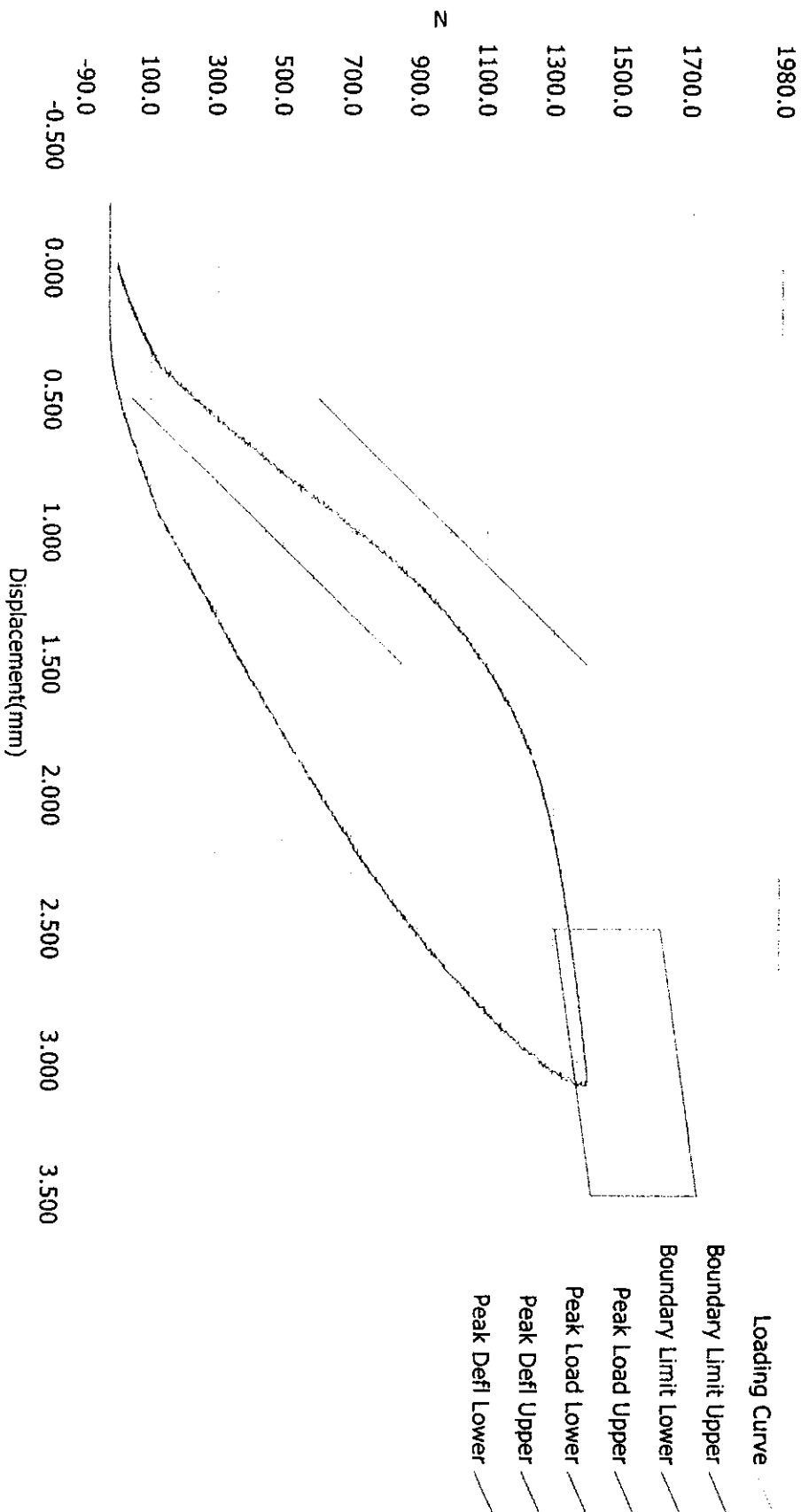
Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
11.6	8.1	-3.4	40.3



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.0	19.7	-0.2	85.8

MC5311 PRE TEST

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
46852	10/5/2011	11:04 PM	
Cert ID	ATD Serial Number	ATD Type	
N/A	SIDIIs		

Current Date : 10/5/2011

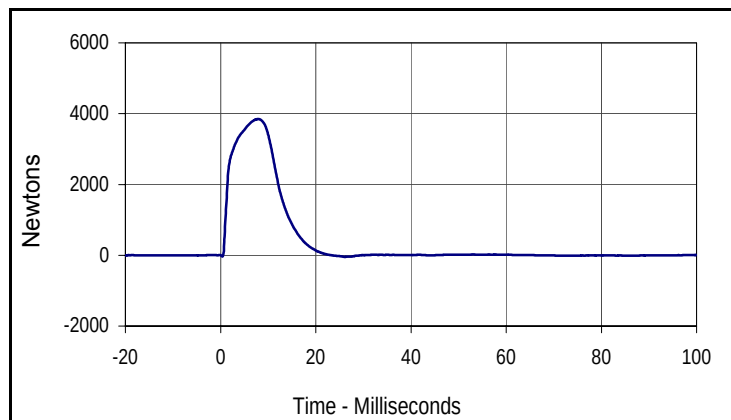
Current Time : 23:05:30

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

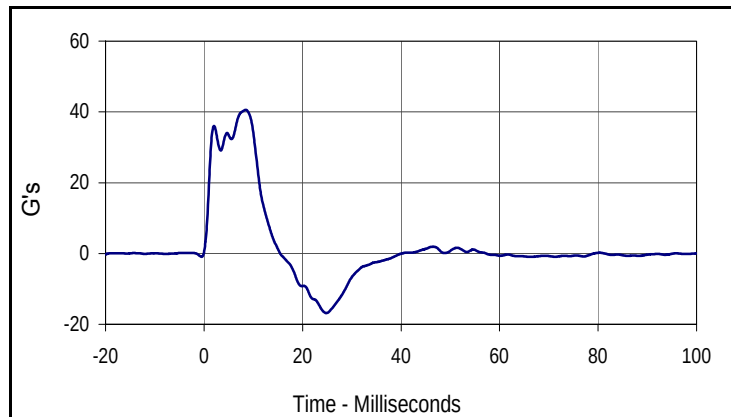
Test Date: 2/3/12
 Test I.D.: 307ACET029



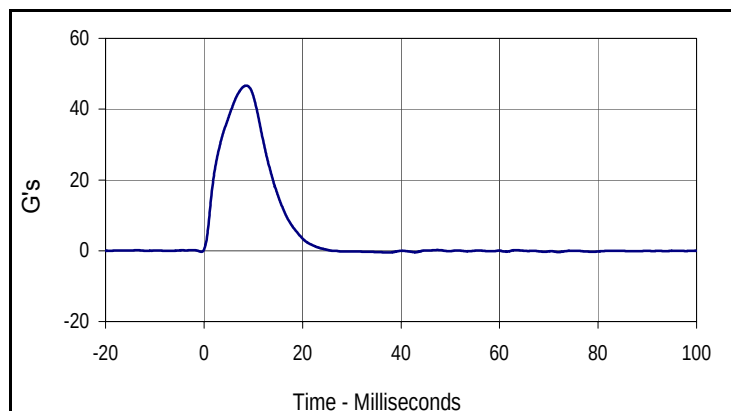
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	300	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	34.0	Pass
	Min		28.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	31.7	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.7	Pass
Peak Acetabulum Force Y	Newtons	3600 to 4300	3847.5	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	40.6	Pass
Peak Impactor Acceleration	G's	38 to 47	46.7	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Acetabulum Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3847.5	7.9	-45.9	26.1



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
40.6	8.4	-16.8	24.8



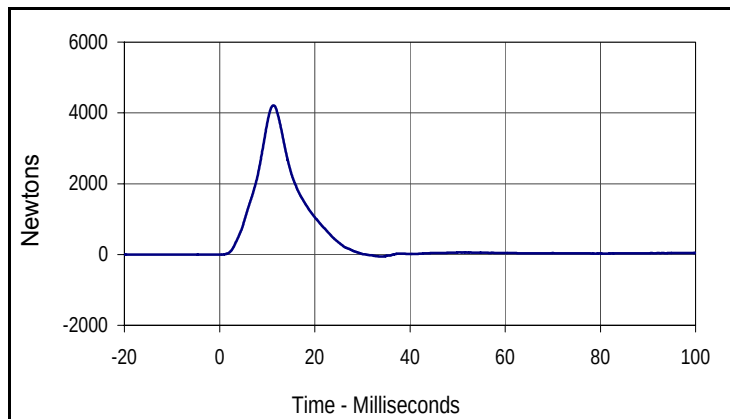
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
46.7	8.6	-0.5	37.6

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

Test Date: 2/3/12
 Test I.D.: 307PL029



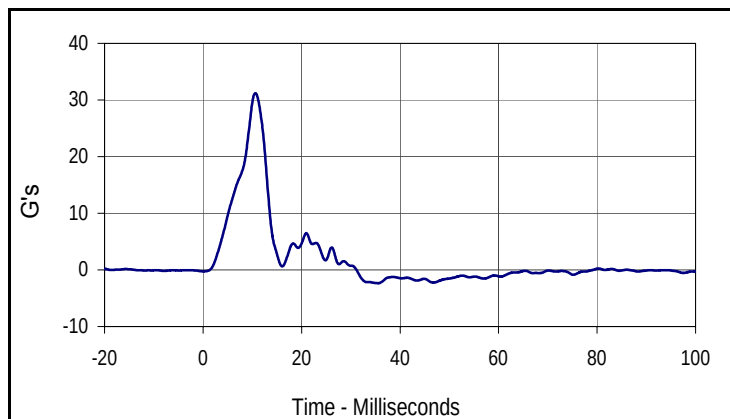
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	320	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	34.0	Pass
	Min		28.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	31.2	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.3	Pass
Peak Iliac Force	Newtons	4100 to 5100	4213.3	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	31.2	Pass
Peak Impactor Acceleration	G's	36 to 45	38.8	Pass
Overall Test Results			Pass	



Curve Description

Pelvis Iliac Force

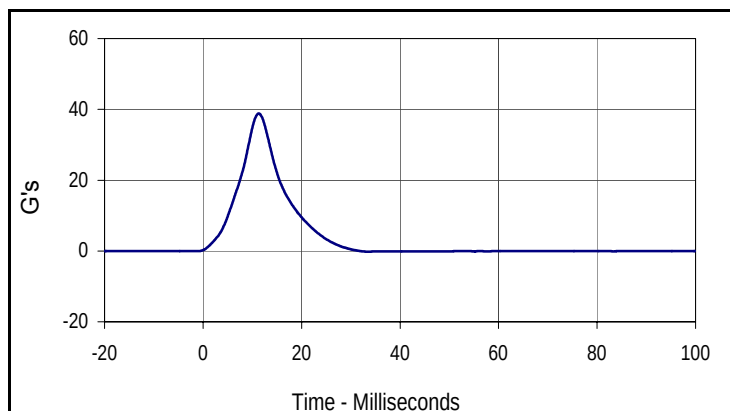
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4213.3	11.3	-58.5	34.4



Curve Description

Pelvis Y Acceleration

Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
31.2	10.6	-2.3	35.6



Curve Description

Impactor Acceleration

Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
38.8	11.3	-0.2	33.3

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

Test Program: ES2re External Measurements
 ATD Serial No.: F037

Test Date: 2/7/12
 Test I.D.: N/A



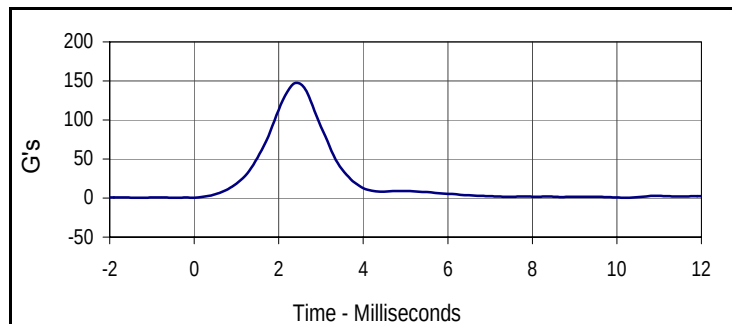
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity		%	10 to 70	31	Pass
1	Sitting Height	mm	900 - 918	909	Pass
2	Seat to Shoulder Joint	mm	558 - 572	564	Pass
3	Seat to Lower Face of Thoracic Spine Box	mm	346 - 356	349	Pass
4	Seat to Hip Joint (Center of Bolt)	mm	97 - 103	101	Pass
5	Sole to Seat, Sitting	mm	333 - 451	386	Pass
6	Head Width	mm	152 - 158	156	Pass
7	Shoulder / Arm Width	mm	461 - 479	470	Pass
8	Thorax Width	mm	322 - 332	327	Pass
9	Abdomen Width	mm	273 - 287	280	Pass
10	Pelvis Lap Width	mm	359 - 373	362	Pass
11	Head Depth	mm	196 - 206	201	Pass
12	Thorax Depth	mm	262 - 272	270	Pass
13	Abdomen Width	mm	194 - 204	199	Pass
14	Pelvis Depth	mm	235 - 245	240	Pass
15	Back of Buttocks to Hip Joint (Center of Bolt)	mm	150 - 160	155	Pass
16	Back of Buttocks to Front Knee	mm	597 - 615	609	Pass
Overall Test Results					Pass

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

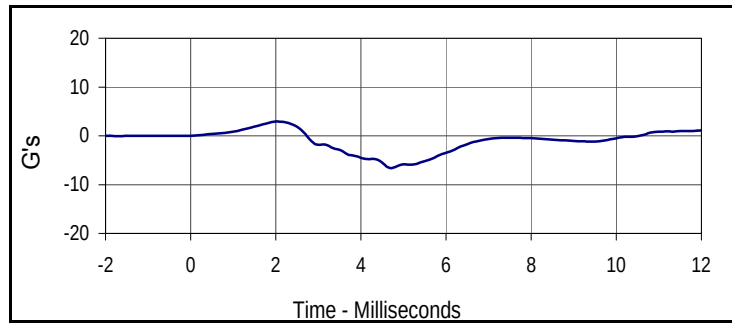
Test Date: 2/7/12
 Test I.D.: F037HD019



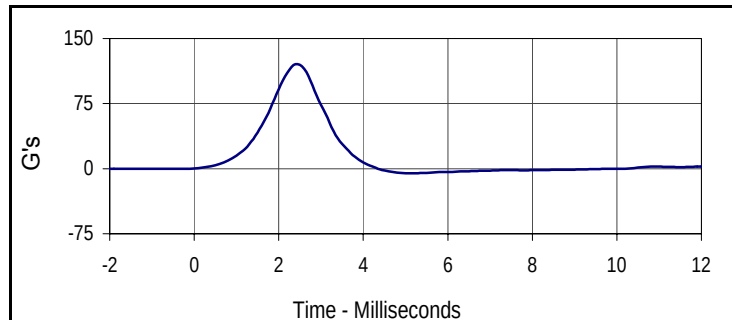
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	250	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.8	Pass
	Min		28.4	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	31.5	Pass
Peak Head Resultant Acceleration	G's	125 to 155	147.7	Pass
Peak Head X Acceleration	G's	≤15	6.6	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	6.0	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
147.7	2.4	0.3	0.0



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
2.9	2.0	-6.6	4.7



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
120.3	2.4	-5.3	5.1



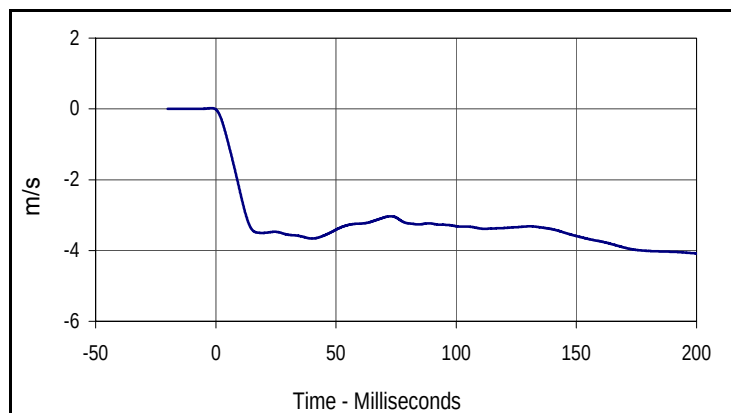
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
85.5	2.4	-1.1	9.5

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

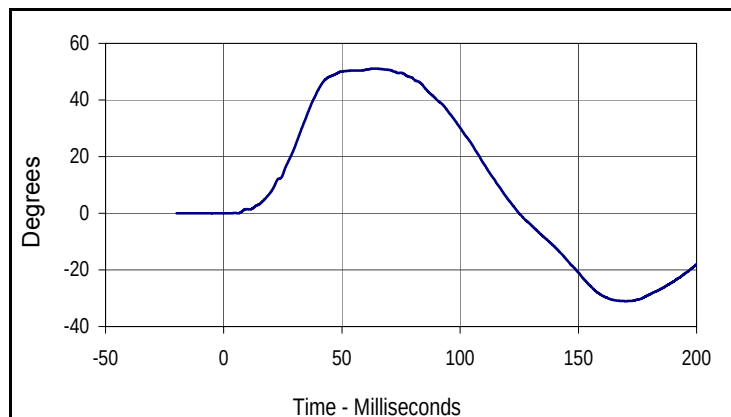
Test Date: 2/7/12
 Test I.D.: F037NB019



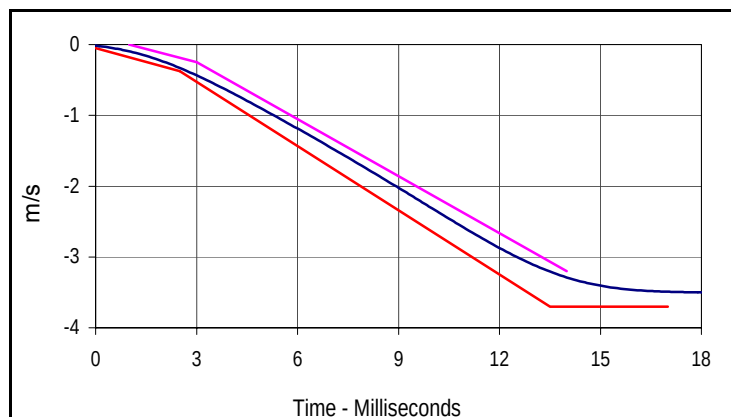
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	270	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.8	Pass
	Min		28.4	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.0	Pass
Pendulum Velocity	m/s	3.3 to 3.5	3.4	Pass
Headform Flexion	Max	49 to 59	51.1	Pass
	Time	54 to 66	63.7	Pass
Headform Flexion Decay (Peak to Zero)	msec	53 to 88	61.3	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	-1.8	-4.1	200.0



Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	180	Degrees
Max	Time	Min	Time
51.1	63.7	-31.0	170.0



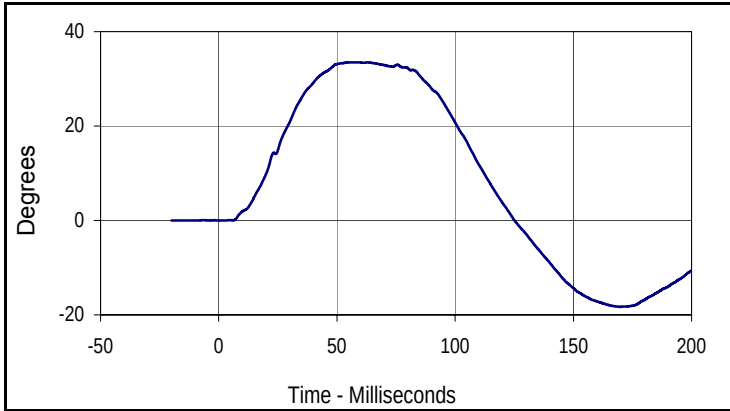
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.8	-4.1	200.0

Velocity Corridors

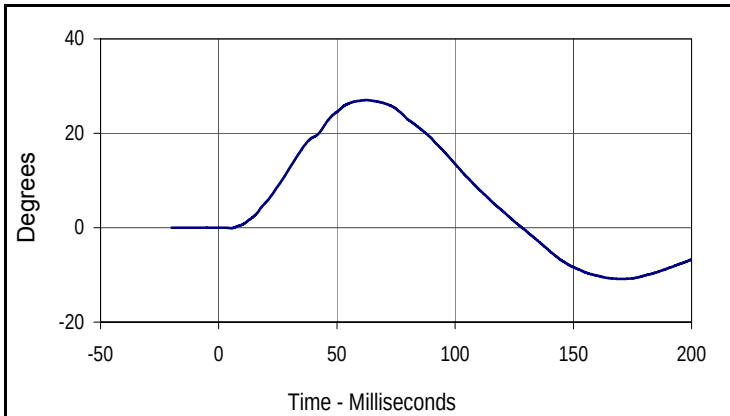
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.0	-0.03	2.5	-0.375
14.0	-3.20	13.5	-3.70
		17.0	-3.70

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

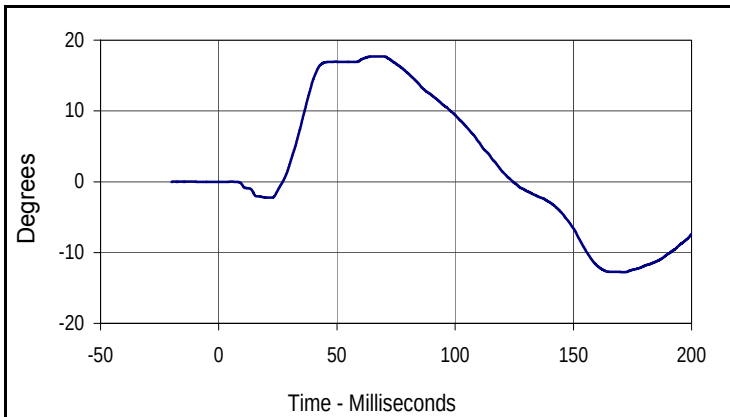
Test Date: 2/7/12
 Test I.D.: F037NB019



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
003	FIL	180	Degrees
Max	Time	Min	Time
33.5	56.8	-18.3	169.8



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
004	FIL	180	Degrees
Max	Time	Min	Time
27.0	62.5	-10.8	171.1



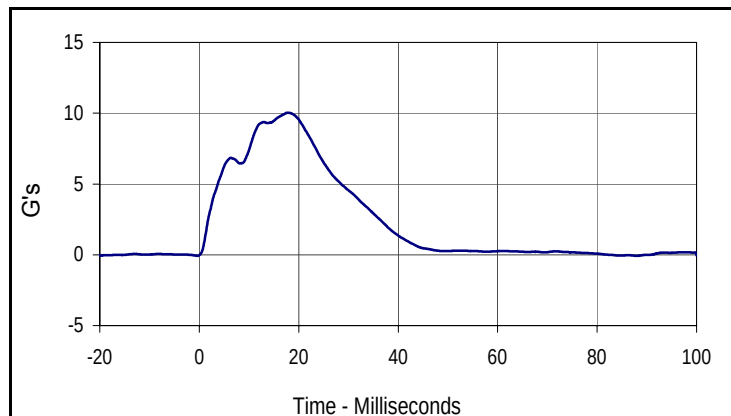
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
005	FIL	180	Degrees
Max	Time	Min	Time
17.7	69.8	-12.8	170.7

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

Test Date: 2/7/12
 Test I.D.: F037SH019



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	310	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.8	Pass
	Min		28.4	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	28.9	Pass
Pendulum Speed	m/s	4.2 to 4.4	4.3	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	10.0	Pass
Overall Test Results			Pass	



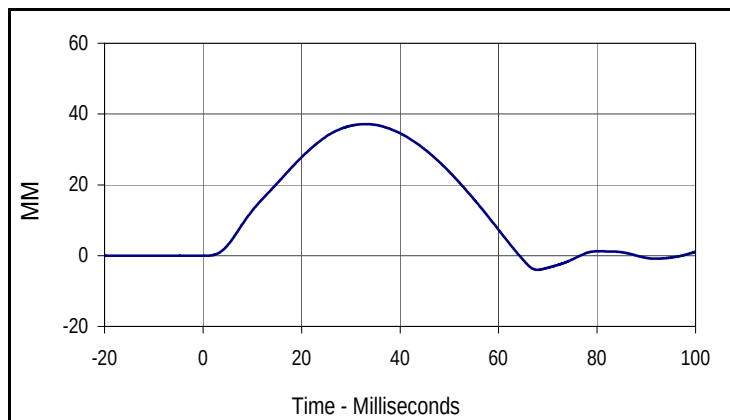
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
10.0	17.9	-0.1	88.0

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

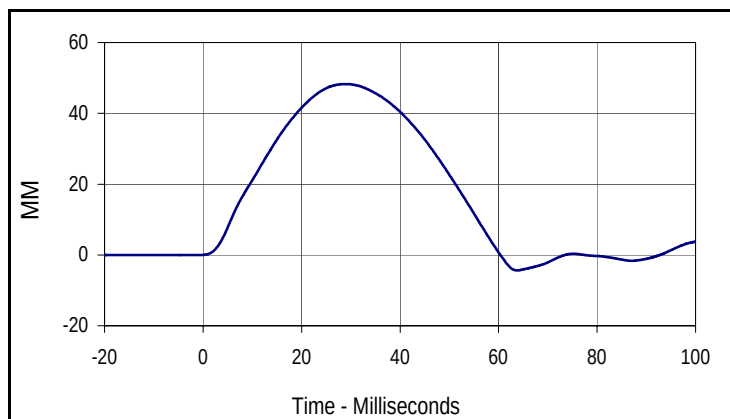
Test Date: 2/7/12
 Test I.D.: F037RB1019



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	350	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.8	Pass
	Min		28.4	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.1	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	37.1	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	48.3	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
37.1	33.1	-4.0	67.9



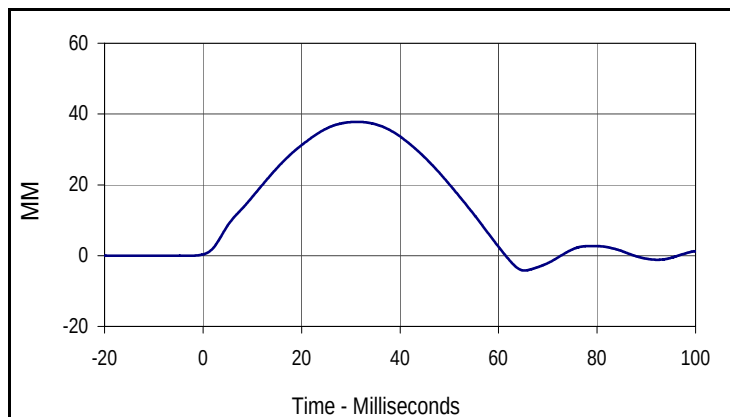
Curve Description			
Upper Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
48.3	28.9	-4.4	63.7

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

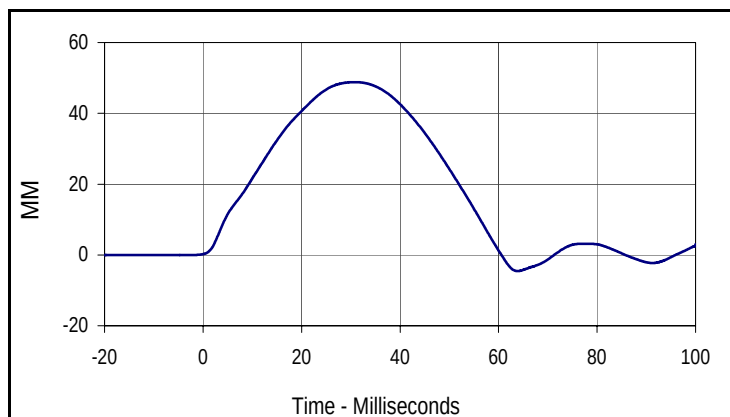
Test Date: 2/7/12
 Test I.D.: F037RB2019



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	360	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.8	Pass
	Min		28.4	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	20.8	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	37.8	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	48.8	Pass
Overall Test Results				Pass



Curve Description			
Middle Rib Deflection (459 mm Drop Height)			
Plot No.	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
37.8	31.3	-4.2	65.3



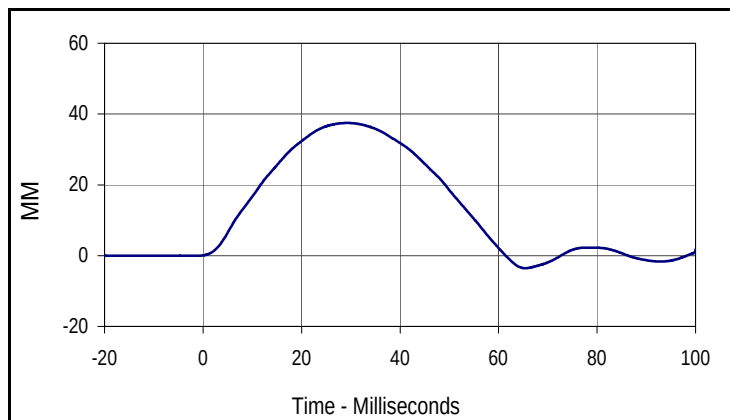
Curve Description			
Middle Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
48.8	30.8	-4.6	63.9

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

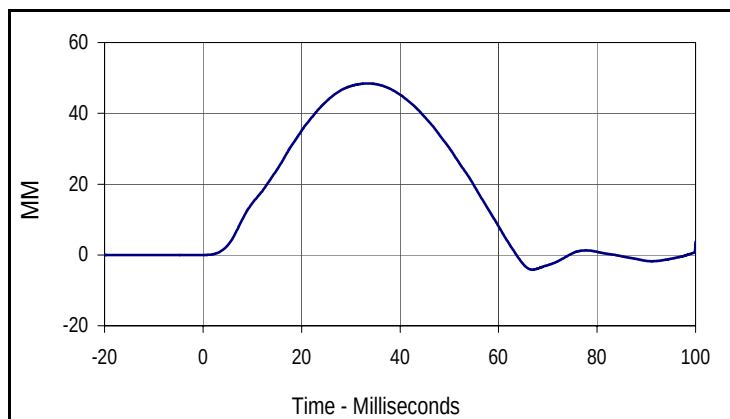
Test Date: 2/7/12
 Test I.D.: F037RB3019



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	390	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.8	Pass
	Min		28.4	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	32.7	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	37.5	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
37.5	29.3	-3.6	65.4



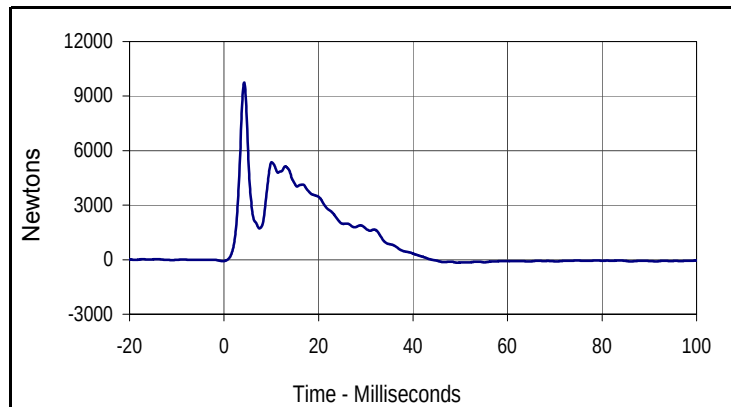
Curve Description			
Lower Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
48.4	33.4	-4.2	66.9

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

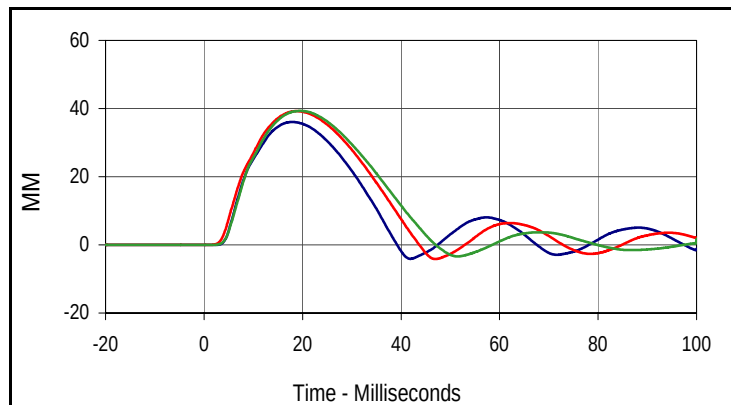
Test Date: 2/7/12
 Test I.D.: F037TH019



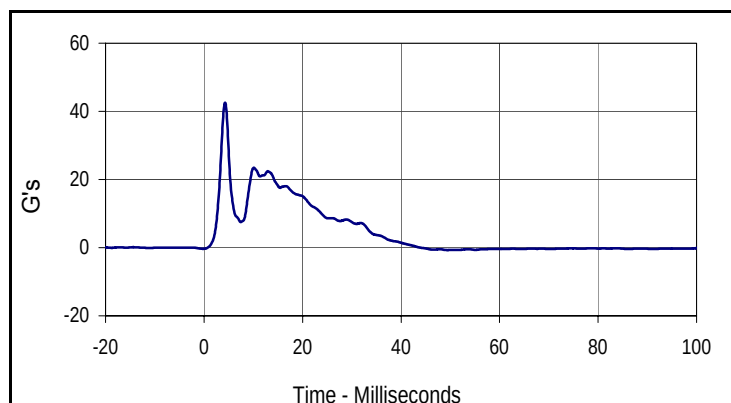
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	400	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.8	Pass
	Min		28.4	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.6	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.9	Pass
Peak Impactor Velocity	m/s	5.4 to 5.6	5.5	Pass
Peak Impactor Force	N	5100 to 6200	5368.2	Pass
	msec	> 6.0 msec	10.1	Pass
Peak Upper Rib Deflection	mm	34 to 41	36.1	Pass
Peak Middle Rib Deflection	mm	37 to 45	39.2	Pass
Peak Lower Rib Deflection	mm	37 to 44	39.3	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
9740.4	4.3	-162.4	49.4



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	17.9	-4.1	41.9
Max (Middle)	Time	Min (Middle)	Time
39.2	18.8	-4.2	47.0
Max (Lower)	Time	Min (Lower)	Time
39.3	19.6	-3.4	51.5



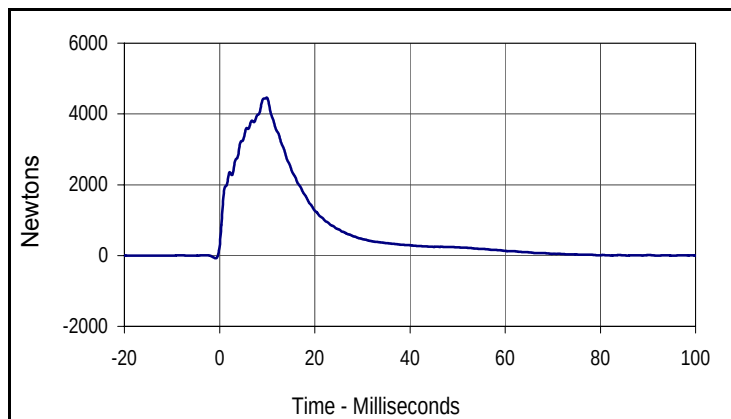
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
42.5	4.3	-0.7	49.4

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

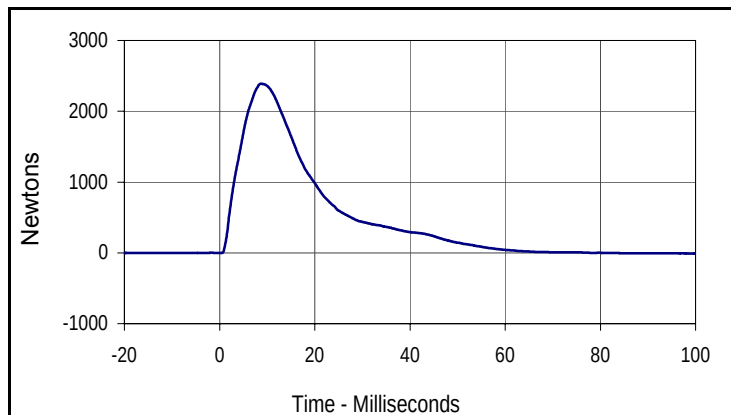
Test Date: 2/7/12
 Test I.D.: F037ABD019



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	420	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.8	Pass
	Min		28.4	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.6	Pass
Probe Velocity	m/s	3.9 to 4.1	4.0	Pass
Peak Impactor Force	N	4000 to 4800	4459.8	Pass
	msec	10.6 to 13.0	11.3	Pass
Sum of Abdominal Forces	N	2200 to 2700	2389.2	Pass
	msec	10.0 to 12.3	10.1	Pass
Overall Test Results				Pass



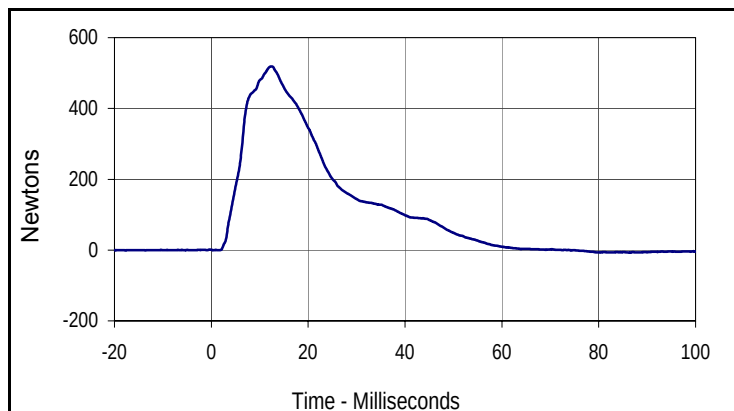
Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
4459.8	11.3	-78.0	0.6



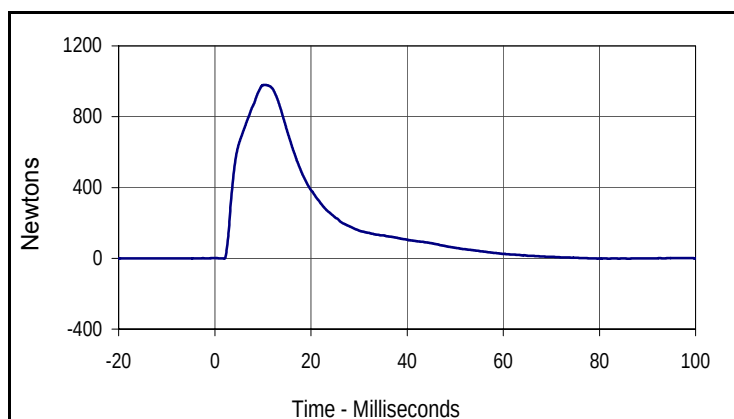
Curve Description			
Abdomen Sum Resultant			
Plot No.	Type	SAE Class	Units
002	RES	600	Newtons
Max	Time	Min	Time
2389.2	10.1	-9.8	99.7

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

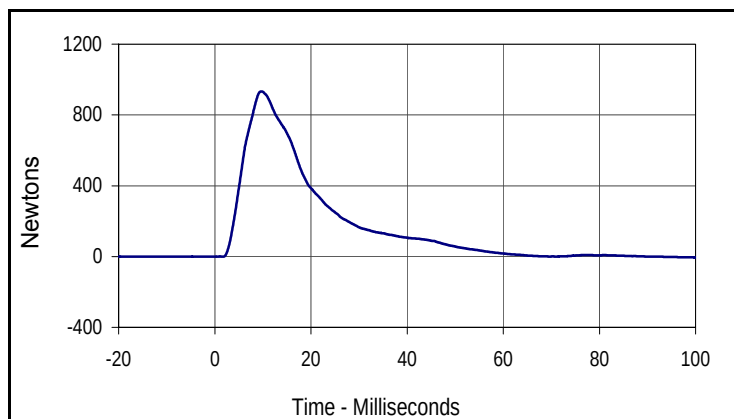
Test Date: 2/7/12
 Test I.D.: F037ABD019



Curve Description			
Front Abdomen Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
518.9	12.5	-7.4	86.4



Curve Description			
Middle Abdomen Force			
Plot No.	Type	SAE Class	Units
004	FIL	600	Newtons
Max	Time	Min	Time
979.2	10.3	-1.8	86.1



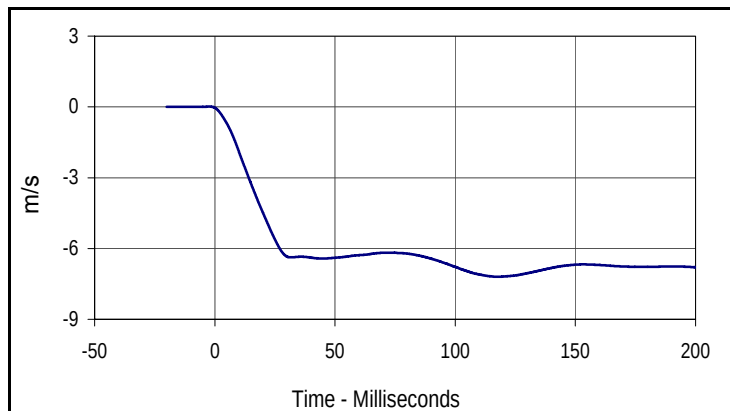
Curve Description			
Rear Abdomen Force			
Plot No.	Type	SAE Class	Units
005	FIL	600	Newtons
Max	Time	Min	Time
932.7	9.7	-6.2	112.2

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

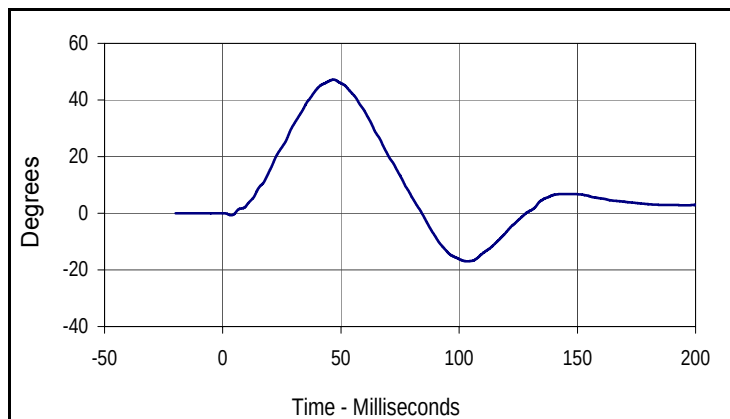
Test Date: 2/7/12
 Test I.D.: F037LB019



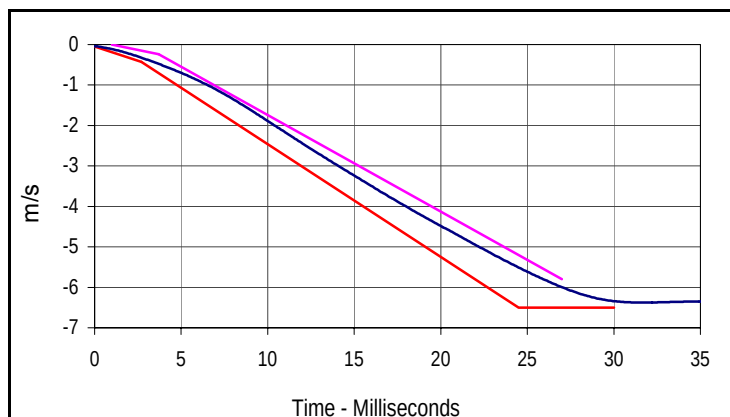
Tested Parameter	Units	Specification	Result	Pass/Fail
Lumbar Spine Assembly Soak Time	Minutes	≥240	360	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.8	Pass
	Min		28.4	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	20.8	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	32.8	Pass
Pendulum Velocity	m/s	5.95 to 6.15	6.08	Pass
Headform Rotation	Max	45 to 55	47.2	Pass
	Time	39 to 53	46.9	Pass
Time of Decay to Zero Angle from Peak	msec	37 to 57	37.4	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	-2.3	-7.2	117.5



Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	180	Degrees
Max	Time	Min	Time
47.2	46.9	-16.9	103.6



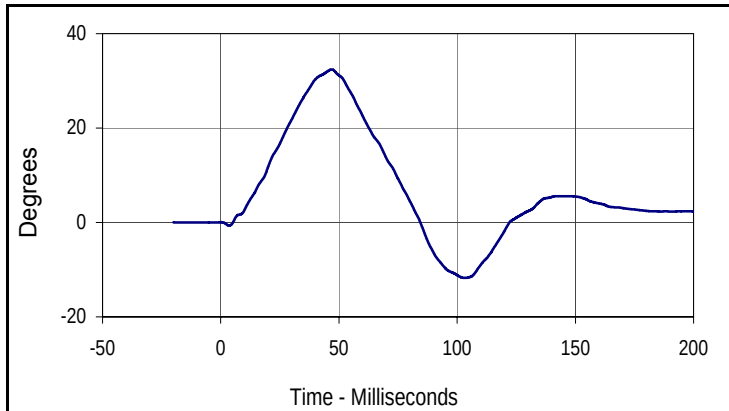
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-2.3	-7.2	117.5

Velocity Corridors

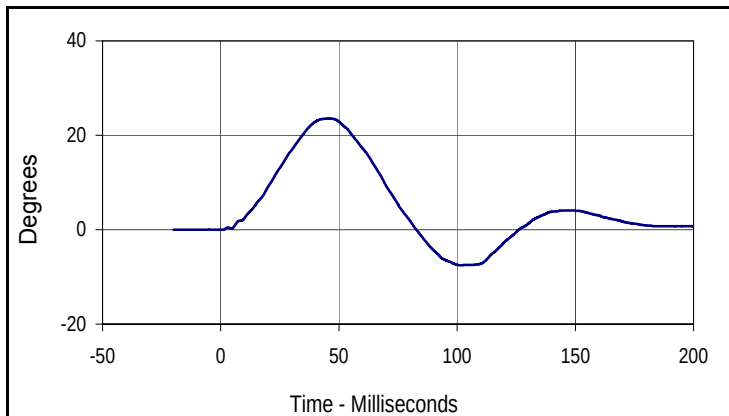
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.7	-0.24	2.7	-0.425
27.0	-5.80	24.5	-6.50
		30.0	-6.50

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

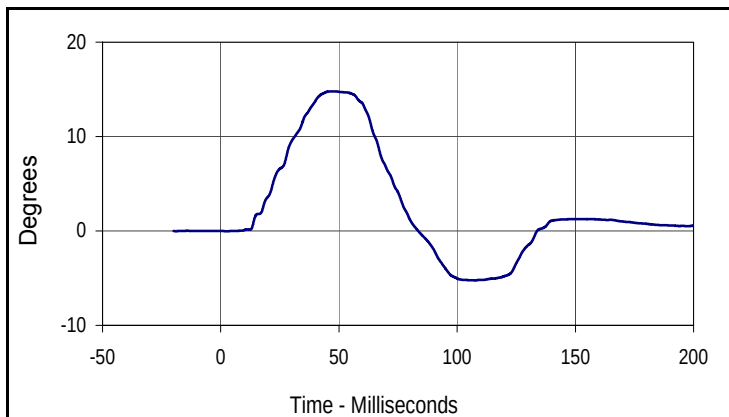
Test Date: 2/7/12
 Test I.D.: F037LB019



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
003	FIL	180	Degrees
Max	Time	Min	Time
32.4	46.9	-11.7	103.5



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
004	FIL	180	Degrees
Max	Time	Min	Time
23.6	45.7	-7.5	101.4



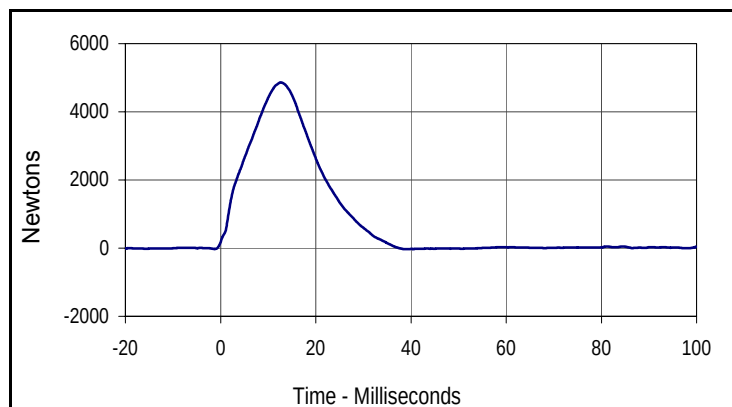
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
005	FIL	180	Degrees
Max	Time	Min	Time
14.8	48.4	-5.2	107.6

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

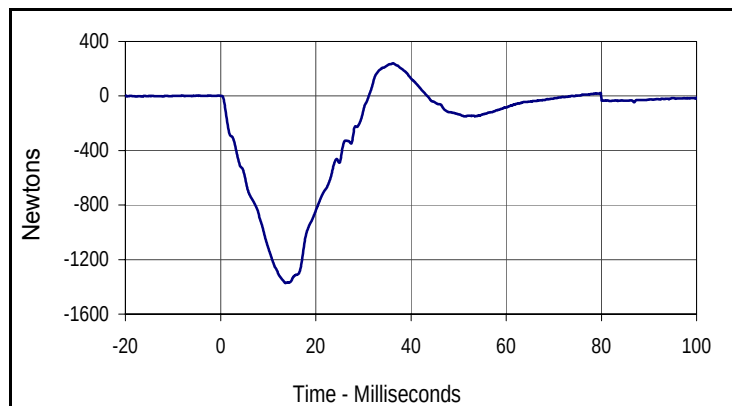
Test Date: 2/7/12
 Test I.D.: F037PL019



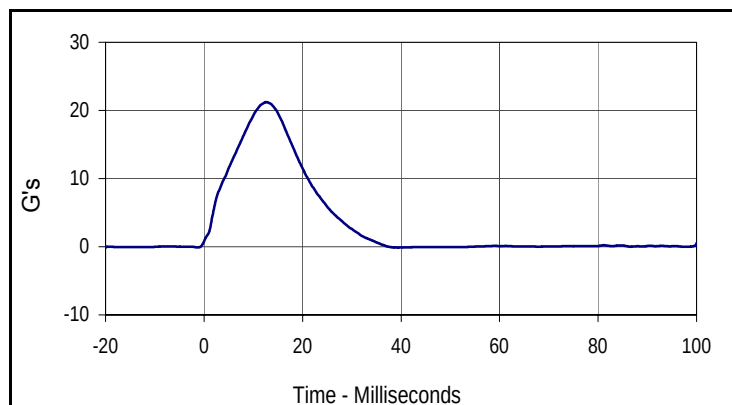
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	490	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.8	Pass
	Min		28.4	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.9	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.3	Pass
Peak Impactor Force	N	4700 to 5400	4860.9	Pass
	msec	11.8 to 16.1	12.6	Pass
Peak Pubic Symphysis Load	N	-1230 to -1590	-1372.0	Pass
	msec	12.2 to 17.0	13.7	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
4860.9	12.6	-28.5	39.4



Curve Description			
Pubic Symphysis Force Y			
Plot No.	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
240.1	36.3	-1372.0	13.7



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
21.2	12.6	-0.1	39.4

Test Program: SID IIs External Measurements
 ATD Serial No.: 307

Test Date: 2/7/12
 Test I.D.: N/A



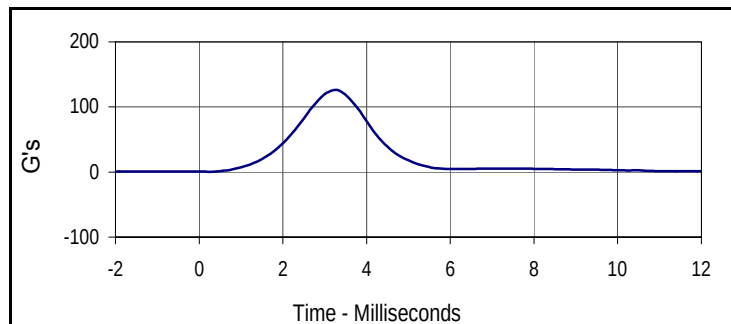
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity		%	10 to 70	32	Pass
A	Sitting Height	mm	772 - 788	780	Pass
B	Shoulder Pivot Height	mm	437 - 453	445	Pass
C	H-Point Height	mm	79 - 89	83	Pass
D	H-Point from Seatback	mm	141 - 151	145	Pass
E	Shoulder Pivot from Backline	mm	97 - 107	103	Pass
F	Thigh Clearance	mm	119 - 135	126	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	183	Pass
J	Head Circumference	mm	541 - 551	546	Pass
K	Buttock to Knee Length	mm	514 - 540	528	Pass
L	Popliteal Height	mm	343 - 369	349	Pass
M	Knee Pivot to Floor Height	mm	392 - 409	401	Pass
N	Buttock Popliteal Length	mm	416 - 442	430	Pass
O	Chest Depth w/o Jacket	mm	195 - 211	205	Pass
P	Foot Length	mm	216 - 232	221	Pass
Q	Hip Breadth with Pelvic Plug	mm	313 - 323	318	Pass
R	Arm Length	mm	249 - 259	252	Pass
S	Knee Joint to Seatback	mm	477 - 493	482	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	874	Pass
Z	Waist Circumference	mm	760 - 791	774	Pass
Overall Test Results					Pass

Test Program: SID IIs Head Drop Test
 ATD Serial No.: 307

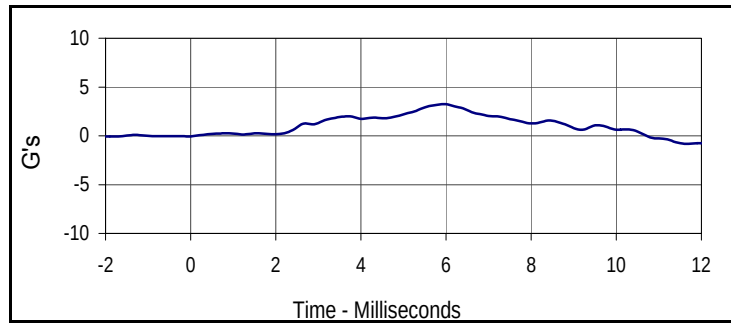
Test Date: 2/7/12
 Test I.D.: 307HD030



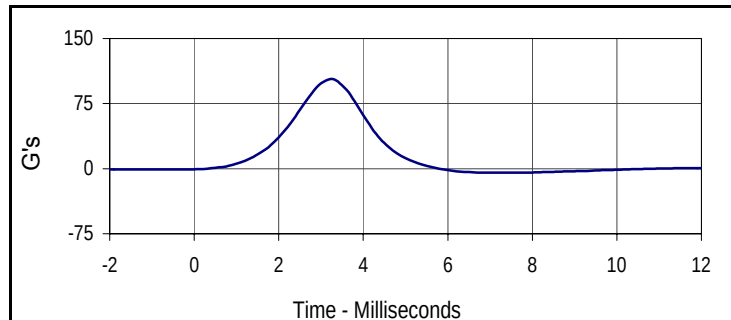
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	250	Pass
Temperature During Soak	Max	18.9 to 25.6	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.8	Pass
	Min		28.4	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	28.7	Pass
Peak Head Resultant Acceleration	G's	115 to 137	126.0	Pass
Peak Head X Acceleration	G's	<15	3.2	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	14.2	Pass
Overall Test Results				Pass



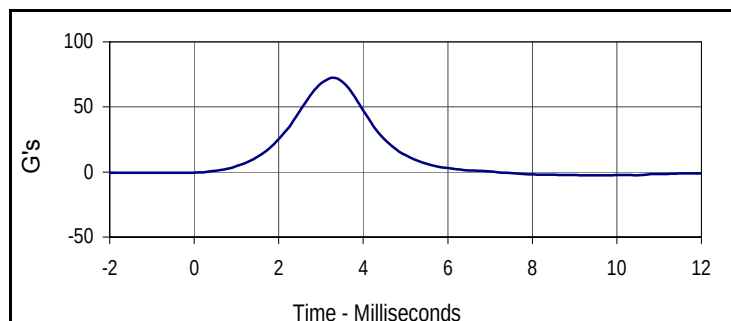
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
126.0	3.3	0.2	0.3



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
3.2	6.0	-0.1	-0.1



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
103.2	3.2	-4.7	7.6



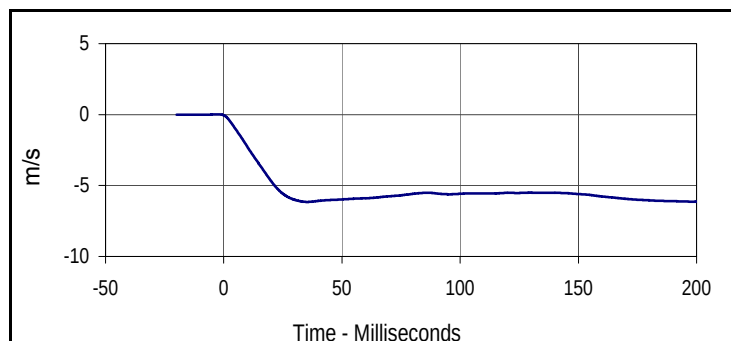
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
72.6	3.3	-2.6	9.8

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

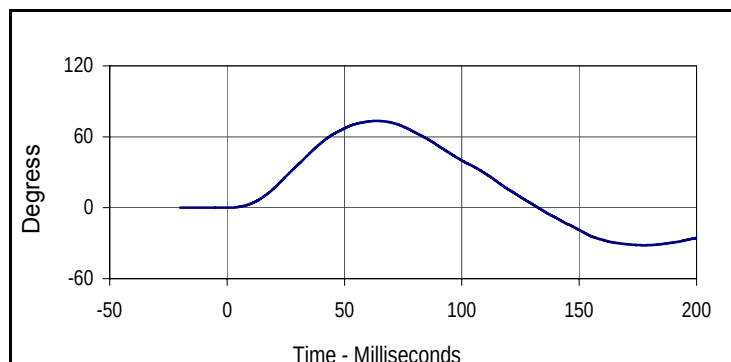
Test Date: 2/7/12
 Test I.D.: 307NB030



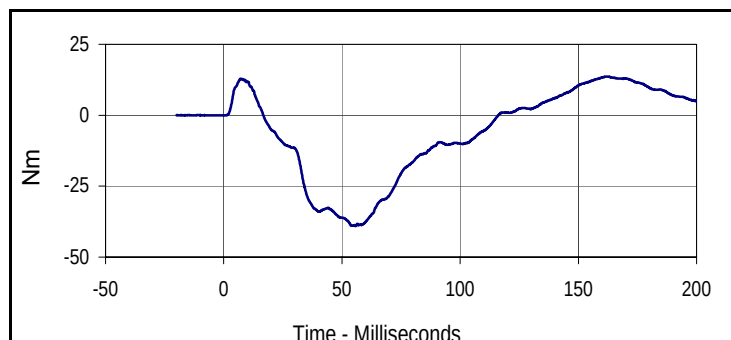
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	340	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.7	Pass
	Min	°C		20.7	Pass
Humidity During Soak	Max	%	10.0 to 70.0	33.8	Pass
	Min	%		28.4	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	20.8	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	32.1	Pass
Pendulum Velocity		m/s	5.51 to 5.63	5.58	Pass
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.27	Pass
	15 msec	m/s	-3.30 to -4.10	-3.50	Pass
	20 msec	m/s	-4.40 to -5.40	-4.68	Pass
	25 msec	m/s	-5.40 to -6.10	-5.58	Pass
	25-100 msec	m/s	-5.50 to -6.20	-6.16	Pass
D-Plane Rotation	Max	Degrees	71 to 81	73.4	Pass
	Time	msec	50 to 70	63.6	Pass
Peak Occipital Condyle Moment		Nm	-36 to -44	-39.1	Pass
Decaying Moment Time to Cross 0 Nm		msec	102 to 126	116.2	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	-2.2	-6.2	35.3



Curve Description			
Maximum Translation Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degress
Max	Time	Min	Time
73.4	63.6	-31.7	177.6



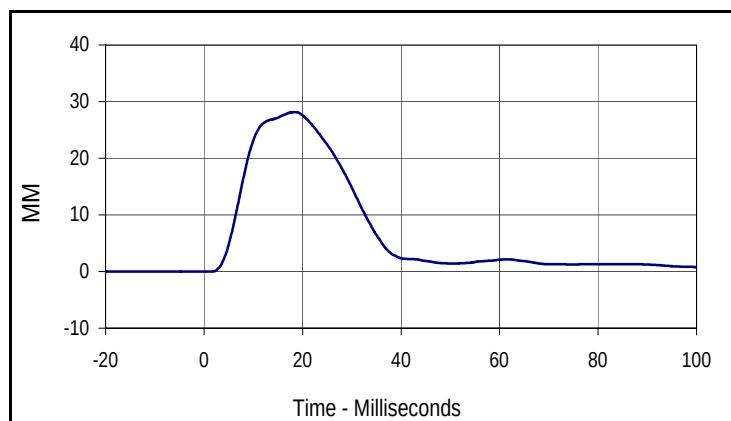
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
13.6	162.3	-39.1	55.7

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

Test Date: 2/7/12
 Test I.D.: 307SH030



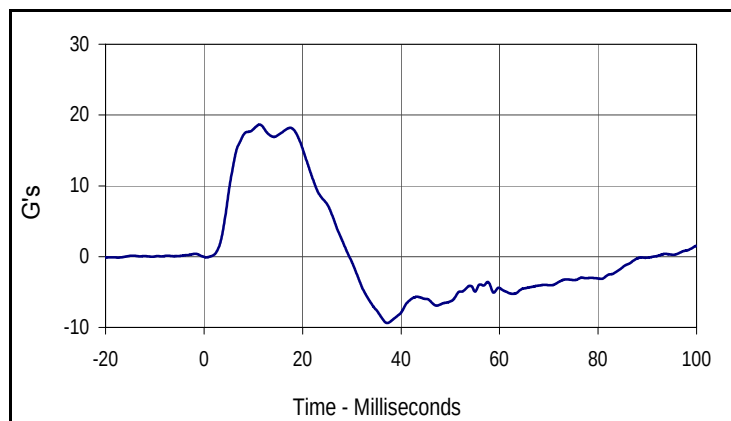
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥180	210	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.7	Pass
	Min	°C		20.7	Pass
Humidity During Soak	Max	%	10.0 to 70.0	33.8	Pass
	Min	%		28.4	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	20.7	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	28.7	Pass
Impactor Velocity		m/s	4.20 to 4.40	4.34	Pass
Peak Shoulder Deflection		mm	28 to 37	28.1	Pass
Peak Lateral Spine Acceleration Y		G's	17 to 22	18.7	Pass
Peak Impactor Acceleration		G's	13 to 18	16.1	Pass
Overall Test Results				Pass	



Curve Description

Shoulder Acceleration

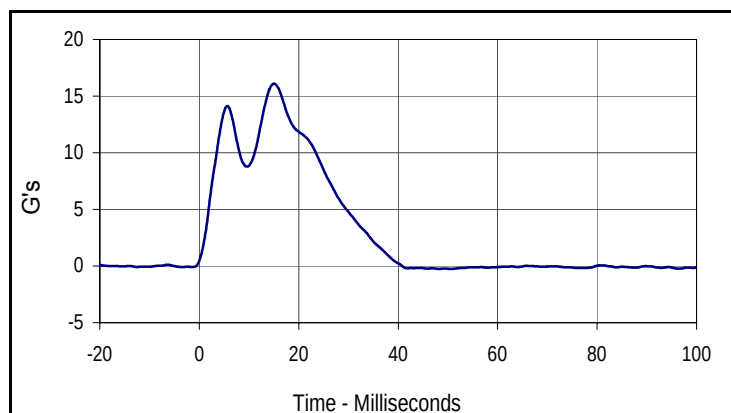
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
28.1	18.3	0.0	-3.8



Curve Description

Upper Spine Y Acceleration

Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
18.7	11.3	-9.4	37.2



Curve Description

Impactor Acceleration

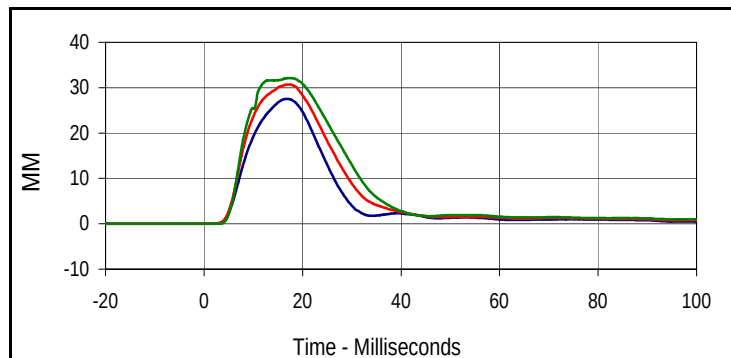
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
16.1	15.0	-0.3	50.6

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

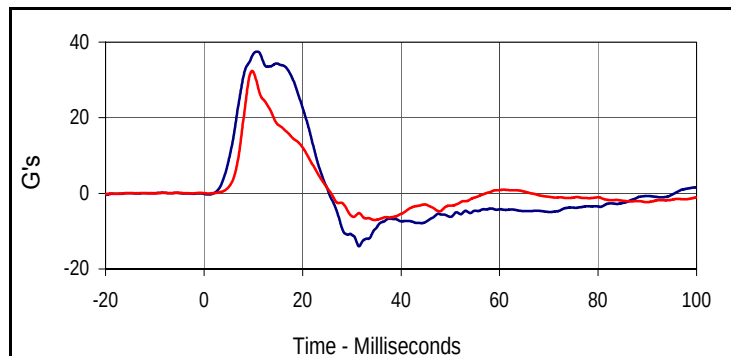
Test Date: 2/7/12
 Test I.D.: 307TWA030



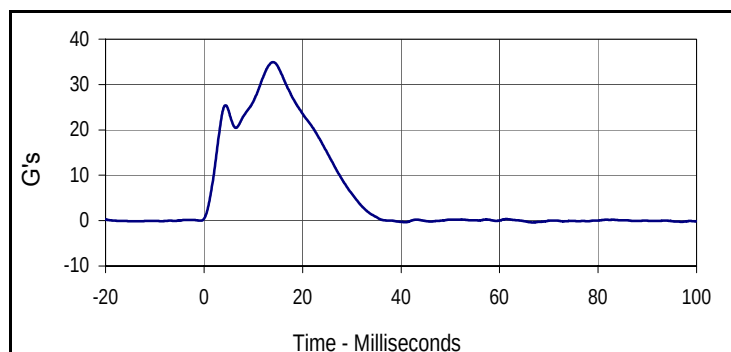
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	240	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.8	Pass
	Min		28.4	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	32.7	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.7	Pass
Peak Shoulder Deflection	mm	31 to 40	34.3	Pass
Peak Upper Thorax Rib Deflection	mm	25 to 32	27.6	Pass
Peak Middle Thorax Rib Deflection	mm	30 to 36	30.7	Pass
Peak Lower Thorax Rib Deflection	mm	32 to 38	32.1	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	37.5	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	32.3	Pass
Peak Impactor Acceleration	G's	30 to 36	34.9	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
27.6	16.8	0.0	-5.9
Middle Thorax Deflection			
Max	Time	Min	Time
30.7	17.1	0.0	-9.5
Lower Thorax Deflection			
Max	Time	Min	Time
32.1	17.3	0.0	-8.1



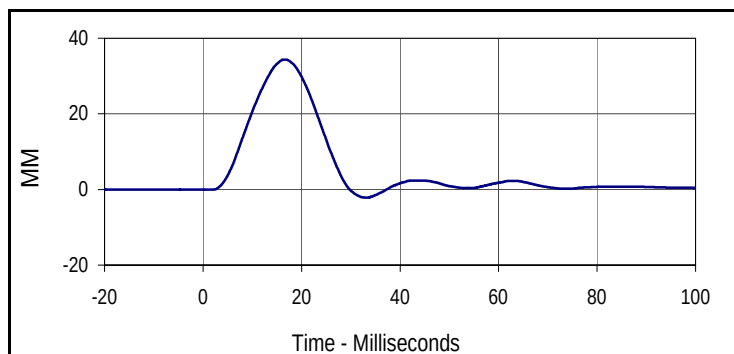
Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
37.5	10.9	-14.0	31.4
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
32.3	9.7	-7.1	34.6



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
34.9	14.0	-0.4	66.8

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

Test Date: 2/7/12
 Test I.D.: 307TWA030



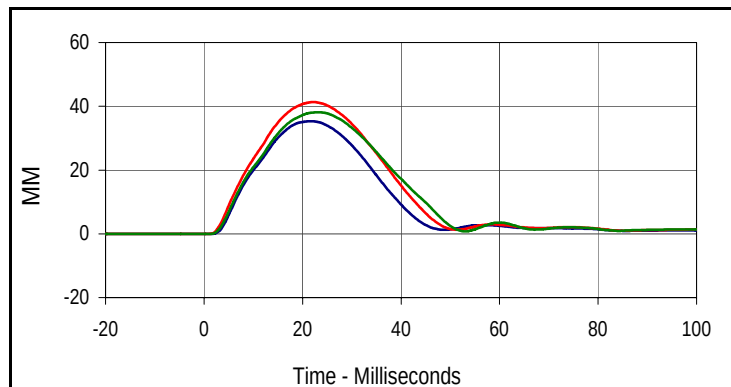
Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
007	FIL	600	MM
Max	Time	Min	Time
34.3	16.5	-2.1	33.4

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

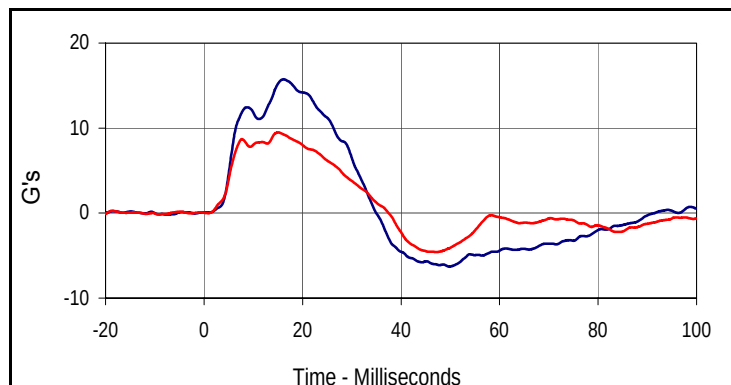
Test Date: 2/7/12
 Test I.D.: 307TWOA030



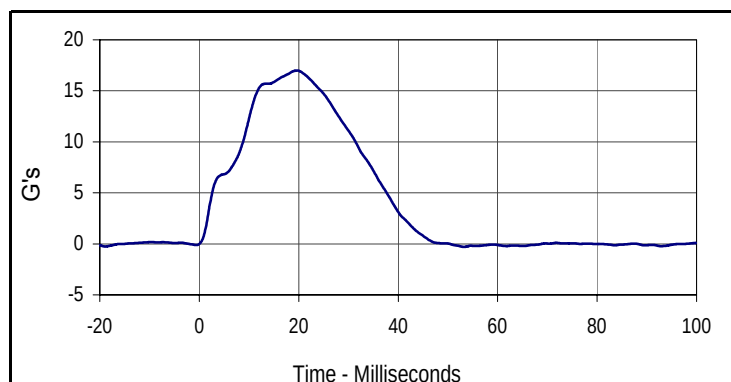
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥180	260	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.7	Pass
	Min	°C		20.7	Pass
Humidity During Soak	Max	%	10.0 to 70.0	33.8	Pass
	Min	%		28.4	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	32.4	Pass
Impactor Velocity		m/s	4.2 to 4.4	4.3	Pass
Peak Upper Thorax Rib Deflection		mm	32 to 40	35.3	Pass
Peak Middle Thorax Rib Deflection		mm	39 to 45	41.3	Pass
Peak Lower Thorax Rib Deflection		mm	35 to 43	38.1	Pass
Peak Upper Spine Y Acceleration		G's	13 to 17	15.7	Pass
Peak Lower Spine Y Acceleration		G's	7 to 11	9.5	Pass
Peak Impactor Acceleration		G's	14 to 18	17.0	Pass
Overall Test Results				Pass	



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
35.3	21.4	0.0	-15.7
Middle Thorax Deflection			
Max	Time	Min	Time
41.3	22.4	0.0	-18.7
Lower Thorax Deflection			
Max	Time	Min	Time
38.1	22.9	0.0	-0.8



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.7	16.1	-6.3	49.8
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
9.5	15.1	-4.6	47.2



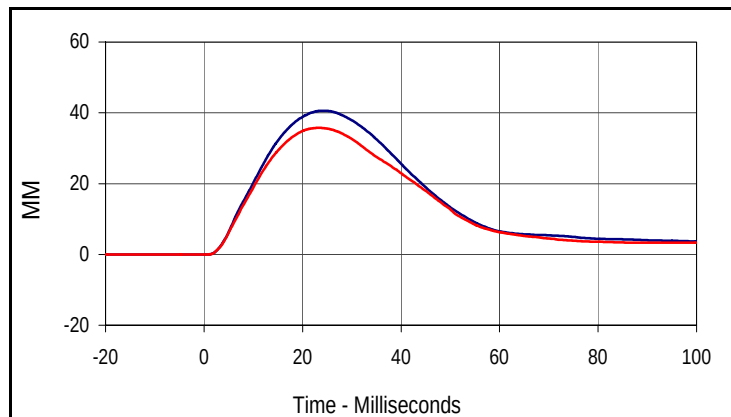
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
17.0	19.7	-0.3	53.2

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

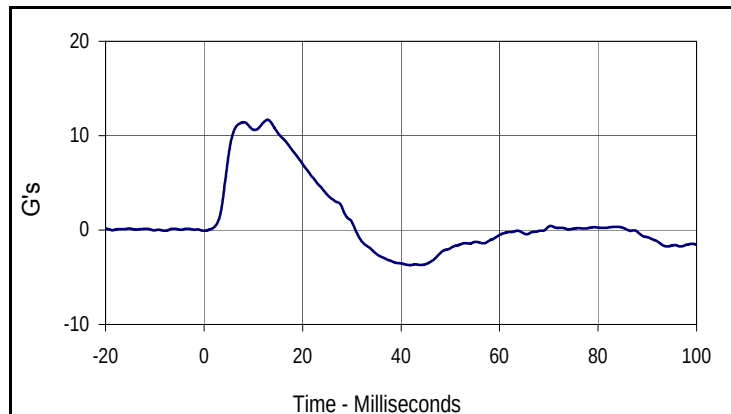
Test Date: 2/7/12
 Test I.D.: 307ABD030



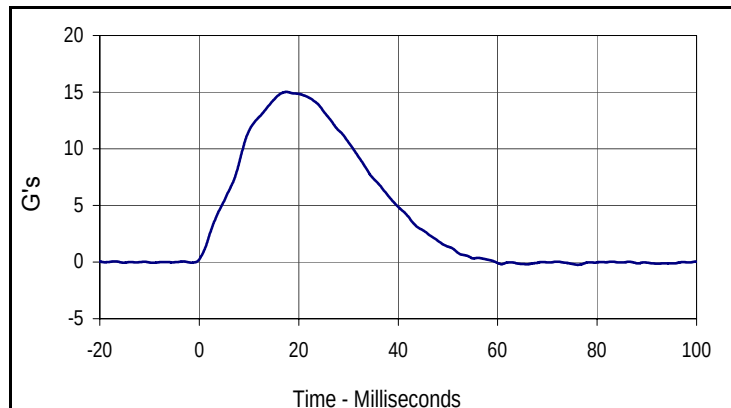
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	270	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.8	Pass
	Min		28.4	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.3	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.3	Pass
Peak Upper Abdominal Rib Deflection	mm	36 to 47	40.6	Pass
Peak Lower Abdominal Rib Deflection	mm	33 to 44	35.7	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	11.7	Pass
Peak Impactor Acceleration	G's	12 to 16	15.0	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
40.6	24.3	0.0	-10.6
Curve Description			
Lower Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
35.7	23.4	0.0	-5.3



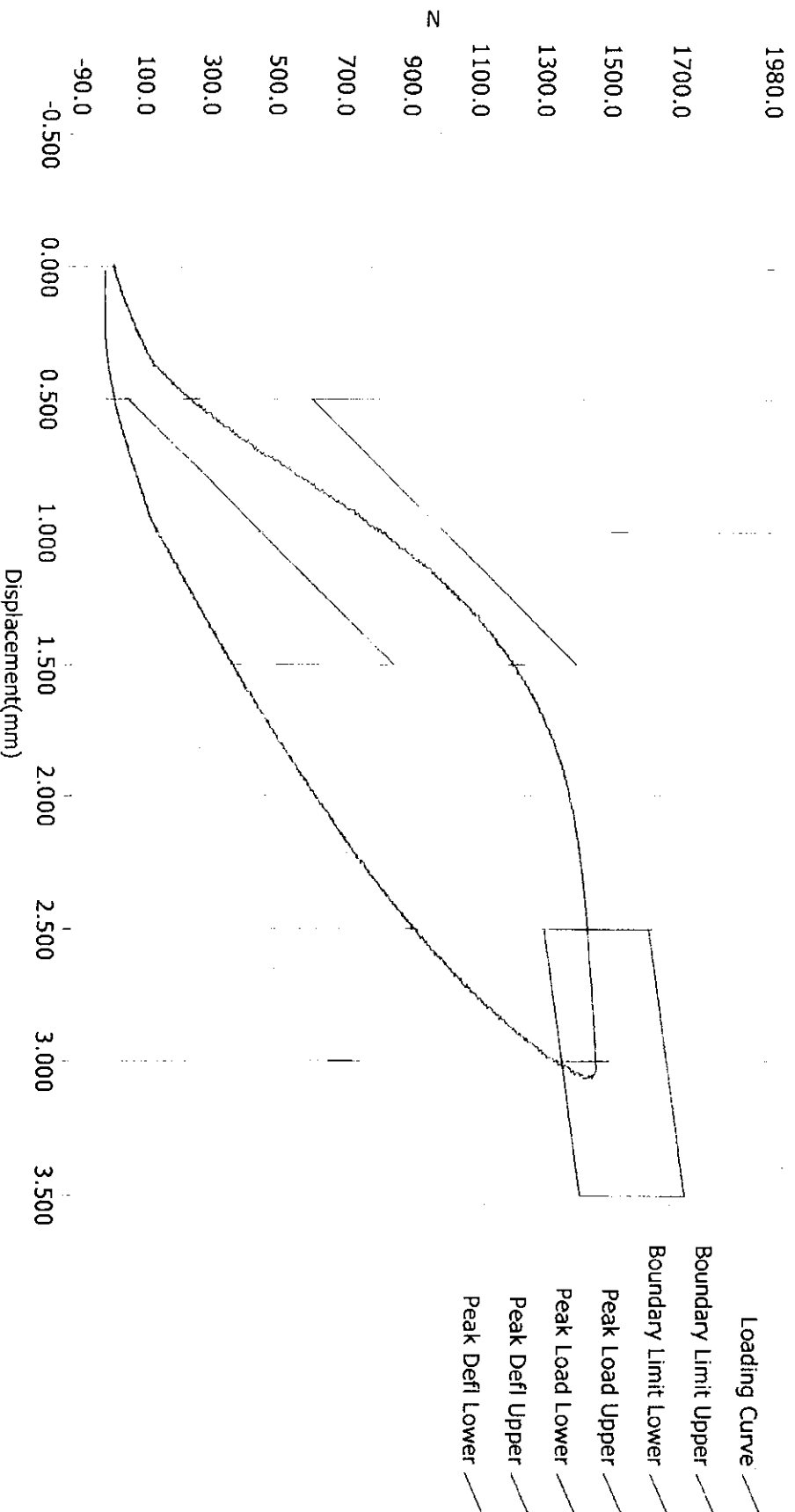
Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
11.7	12.9	-3.7	41.8



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.0	17.6	-0.2	76.1

MC5311 POST TEST

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
Cert ID	ATD Serial Number	ATD Type	
	36289	SIDIIs	

Current Date : 9/22/2010

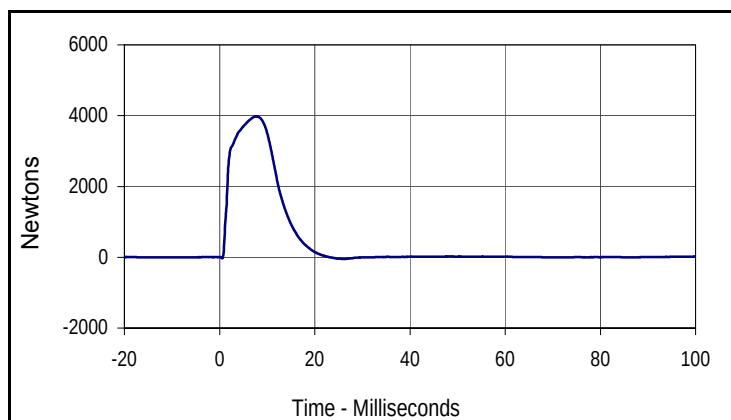
Current Time : 11:55:38

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

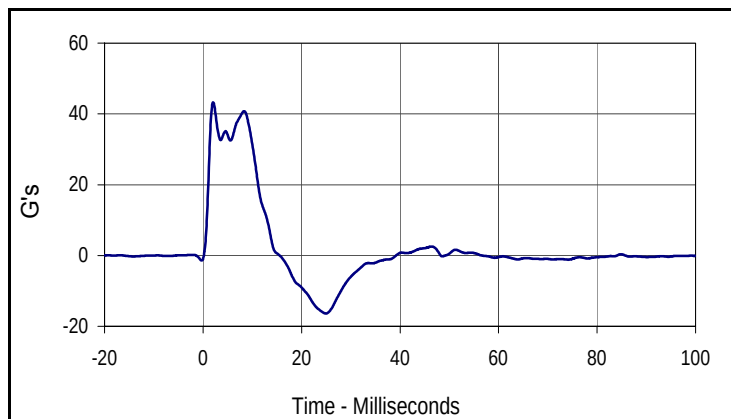
Test Date: 2/7/12
 Test I.D.: 307ACET030



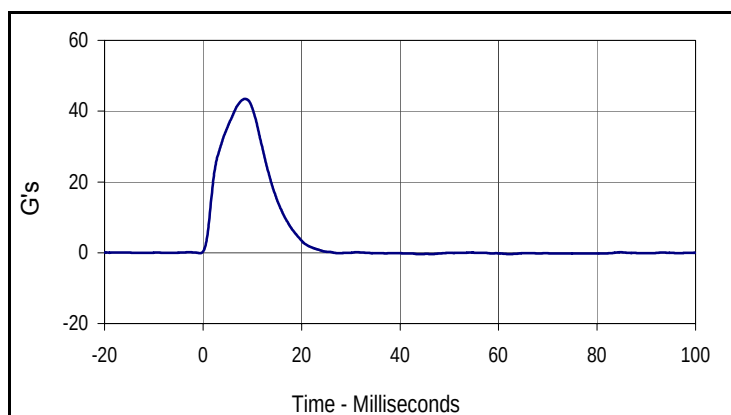
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	300	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.8	Pass
	Min		28.4	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.1	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.7	Pass
Peak Acetabulum Force Y	Newtons	3600 to 4300	3979.8	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	40.8	Pass
Peak Impactor Acceleration	G's	38 to 47	43.5	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Acetabulum Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3979.8	7.7	-48.7	26.2



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
43.3	2.0	-16.4	24.9



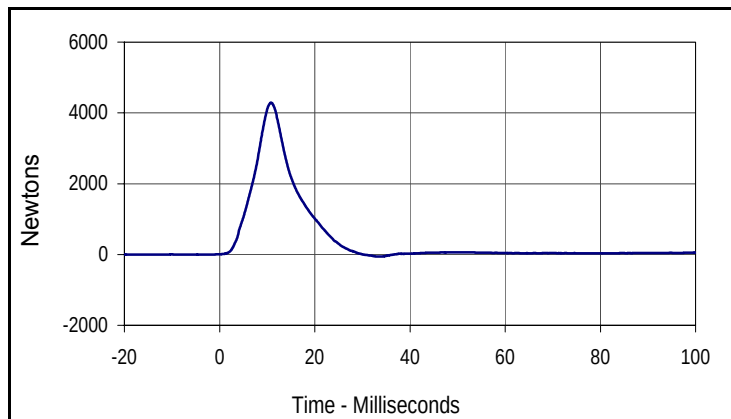
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
43.5	8.5	-0.4	62.4

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

Test Date: 2/7/12
 Test I.D.: 307PL030



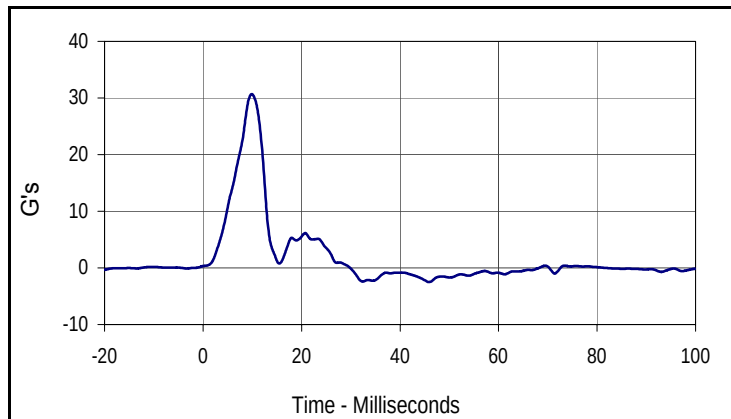
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	320	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.8	Pass
	Min		28.4	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.6	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.1	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.3	Pass
Peak Iliac Force	Newtons	4100 to 5100	4287.9	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	30.7	Pass
Peak Impactor Acceleration	G's	36 to 45	37.8	Pass
Overall Test Results			Pass	



Curve Description

Pelvis Iliac Force

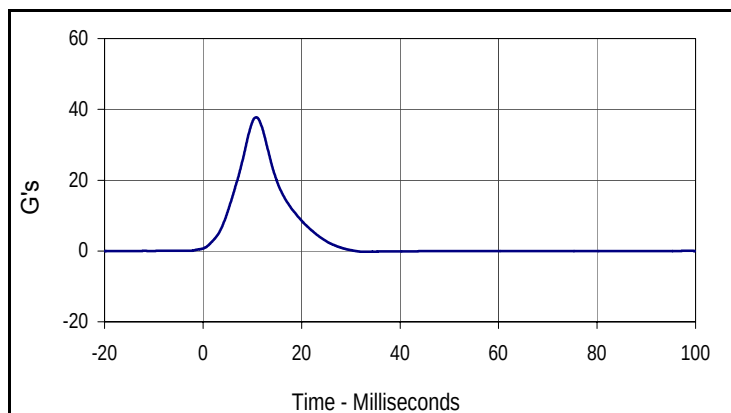
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4287.9	10.8	-60.5	34.1



Curve Description

Pelvis Y Acceleration

Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
30.7	9.9	-2.5	45.9



Curve Description

Impactor Acceleration

Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
37.8	10.8	-0.2	32.6

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 – Dummy Instrumentation (ES-2re)

			ES-2re S/N F037		
			Serial Number	Manufacturer	Calibration
Head Accelerometers		X	P58858	Endevco	5/24/11
		Y	P58865	Endevco	5/24/11
		Z	P58867	Endevco	5/24/11
Thorax Rib Displacement Potentiometers	Upper	Y	209	FTSS	6/2/11
	Middle	Y	210	FTSS	6/2/11
	Lower	Y	207	FTSS	6/2/11
Abdomen Load Cells	Forward	Y	1504	Denton	6/10/11
	Middle	Y	1505	Denton	6/29/11
	Rear	Y	1506	Denton	6/10/11
Lower Spine Accelerometers (T12)		X	04J04107-Z15	Endevco	6/2/11
		Y	P58876	Endevco	6/2/11
		Z	P58877	Endevco	5/31/11
Pubic Symphysis Load Cell		Y	464	Denton	6/9/11

TABLE 2 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N 307		
				Serial Number	Manufacturer	Calibration
Head Accelerometers			X	P58900	Endevco	7/5/11
			Y	P58902	Endevco	7/5/11
			Z	P58983	Endevco	7/5/11
Displacement Potentiometers	Shoulder		Y	1244	FTSS	7/1/11
	Thoracic Rib	Upper	Y	1249	FTSS	7/1/11
		Middle	Y	1265	FTSS	7/1/11
		Lower	Y	1277	FTSS	7/1/11
	Abdominal Rib	Upper	Y	1286	FTSS	7/1/11
		Lower	Y	1290	FTSS	7/1/11
Lower Spine Accelerometers (T12)			X	P59007	Endevco	7/1/11
			Y	P59015	Endevco	7/1/11
			Z	P59016	Endevco	7/1/11
Acetabulum Load Cell			Y	277	Denton	6/10/11
Iliac Wing Load Cell			Y	289	Denton	6/10/11
Pelvis Plug (Struck Side)				36692	FTSS	9/27/10
Pelvis Plug (Non-Struck Side)				36292	FTSS	9/22/10

TABLE 3 – Vehicle Instrumentation

Vehicle Instrumentation			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	Ketx5a	ICSensor	6/20/11
	Vehicle Center of Gravity	Y	Ketx5b	ICSensor	6/20/11
	Vehicle Center of Gravity	Z	Ketx5c	ICSensor	6/20/11
2	Right Sill at Front Seat	X	Keva202x	ICSensor	11/30/11
	Right Sill at Front Seat	Y	Keva202y	ICSensor	11/30/11
	Right Sill at Front Seat	Z	Keva202z	Endevco	11/30/11
3	Right Sill at Rear Seat	X	N/A	N/A	N/A
	Right Sill at Rear Seat	Y	N/A	N/A	N/A
	Right Sill at Rear Seat	Z	N/A	N/A	N/A
4	Left Sill at Front Door	Y	EK16J	Endevco	2/3/11
5	Left Sill at Rear Door	Y	J27055	Endevco	4/29/11
6	Left A-Post Lower	Y	BE68J	Endevco	1/6/12
7	Left A-Post Middle	Y	J21776	Endevco	1/11/12
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	J21907	Endevco	3/30/11
11	Rear Seat Structure	Y	N/A	N/A	N/A
12	Right Rear Occ. Compartment	Y	Keva004	ICSensor	5/8/11
13	Engine Block	X	BI60H	Endevco	7/22/11
	Engine Block	Y	AR17	Endevco	7/22/11
14	Rear Floorpan Above Axle	X	Ketx12a	Endevco	7/20/11
	Rear Floorpan Above Axle	Y	Ketx12y	Endevco	7/21/11
	Rear Floorpan Above Axle	Z	Ketx12z	Endevco	7/21/11

TABLE 4 – MDB Instrumentation

		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	00L13-F37	Entrans	6/22/11
MDB Center of Gravity	Y	02I10-N16	Entrans	6/22/11
MDB Center of Gravity	Z	03J13_Z09	Entrans	6/22/11
Left Frame at Rear Axle Centerline	X	P58705	Endevco	11/6/11
Left Frame at Rear Axle Centerline	Y	05616-L03	Entrans	6/22/11