

REPORT NUMBER: SNCAP-KAR-11-021

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

**HONDA MOTOR CO., LTD.
2011 HONDA CR-Z EX NAVI 3-DOOR HATCHBACK**

NHTSA No: HB5301

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



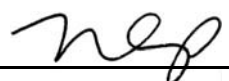
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FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
1200 NEW JERSEY AVE, SE
ROOM W43-410
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Division Chief, New Car Assessment Program
NHTSA, Office of Crashworthiness Standards

Date: 


COTR, New Car Assessment Program
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Date: 

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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 2011 Honda CR-Z EX NAVI 3-Door Hatchback in accordance with the specifications of the Office of Crash Worthiness Standards Test Procedure for the generation of consumer information on vehicle side crash protection. The test was conducted at KARCO Engineering, LLC in Adelanto, CA, on September 23, 2010.

The impact velocity of the Moving Deformable Barrier was 61.80 km/h and the outside ambient temperature at the struck (driver's) side of the vehicle was 33.3 deg. C. The target vehicle's maximum post-test static crush was 231 mm located at level 3. The test vehicle's occupant performance data is as follows:

Measurement Description	Driver ATD (ES-2re)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	161.7
Maximum Thorax Rib Deflection	mm	44	38.6
Total Abdominal Force	N	2500	1512
Pubic Symphysis Force	N	6000	2329

Measurement Description	Passenger ATD (SID-IIs)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	
Lower Spine Resultant Acceleration	g	82	
Total Pelvic Force (Sum of Acetubular and Iliac Forces)	N	5525	

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.

17. Key Words New Car Assessment Program (NCAP) Side Impact Moving Deformable Barrier (MDB) ES-2re SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Admin. Technical Reference Division 1200 New Jersey Ave., SE Room W43-410 Washington, DC 20590	
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SECTION 1

PURPOSE AND SUMMARY OF TEST

PURPOSE

This moving deformable barrier side impact test is part of the MY 2011 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 2011 Honda CR-Z EX NAVI 3-Door Hatchback. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated January 2010.

SUMMARY

A 2011 Honda CR-Z EX NAVI 3-Door Hatchback was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 61.80 km/h (38.40 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 September 23, 2010. Pre- and post-test photographs of the test vehicle, the MDB, and the dummy (ES-2re) are included in Appendix A of this report.

A dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side Impact Laboratory Test Procedure, dated January 2010. The side impact event was documented by 11 cameras. Camera locations are included in Data Sheet No. 5 of this report.

The dummy was instrumented in the following manner:

- DRIVER ATD (ES-2re)
- Head Accelerometers
- Thorax Rib 1 to Rib 3 Potentiometers
- Abdomen Forward, Middle, and Rear Load Cells
- Lower Spine Accelerometers
- Pubic Load Cell

Dummy injury values were recorded as follows:

Measurement Description	Units	Driver ATD (ES-2re)	
		Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	161.7
Maximum Thorax Rib Deflection	mm	44	38.6
Combined Abdominal Force	N	2500	1512
Pubic Symphysis Force	N	6000	2329

Measurement Description	Units	Passenger ATD (SID-IIs)	
		Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	
Lower Spine (T12) Resultant Acceleration	g	82	
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	

Supplemental restraint information is given below:

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

GENERAL COMMENTS

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

SECTION 2

OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback NHTSA No. HB5301
Test Program: MDB Side Impact Test Test Date: 09/23/10

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	29.573
Pressure	Tire Pressures	lbf/in ²	kPa	7.0
Volume	Liquid	gal	liter	3.785
Temperature	General Use	°F	°C	$=(t_f - 32)/1.8$
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf/ft	Nm	1.355

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback NHTSA No. HB5301
 Test Program: MDB Side Impact Test Test Date: 09/23/10

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	HB5301
Model Year	2011
Make	Honda
Model	CR-Z EX NAVI
Body Style	3-Door Hatchback
VIN	JHMZF1D66BS001461
Body Color	Storm Silver Metallic
Delivery Date	9/7/2010
Odometer Reading (km / mi)	109/68
Dealer	Metro Honda
Transmission	CVT
Final Drive	Front
Type / No. of Cylinders	Inline 4
Engine Displacement (L)	1.5
Engine Placement	Transverse
Roof Rack	No
Sunroof / T-Top	No
Tinted Glass	Yes
Traction Control	Yes
Power Brakes	Yes
Front Disc	Yes
Rear Disc	Yes

Anti-Lock Brakes	Yes
All Wheel Drive	No
Power Steering	Yes
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	No
Rear Pass. Curtain Airbag	
Rear Pass. Head/Torso Airbag	
Rear Pass. Torso Airbag	
Rear Pass. Torso/Pelvis Airbag	
Rear Pass. Pelvis Airbag	
Pretensioners	Yes
Load Limiters	Yes
Automatic Door Locks	Yes
Bucket Seats	Yes
Tilt Steering	Yes
Other	
Other	

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

Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Honda Motor Co., Ltd.
Date of Manufacture	Jun-10

GVWR (kg)	1435
GAWR Front (kg)	815
GAWR Rear (kg)	625

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity	2			2	
Capacity Weight (VCW) (kg)				181.0	A
DSC x 68.04 (kg)				136.1	B
Cargo Weight (RCLW) (kg)				44.9	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							
Third Row Seat							

DATA SHEET NO. 1 ... (CONTINUED)

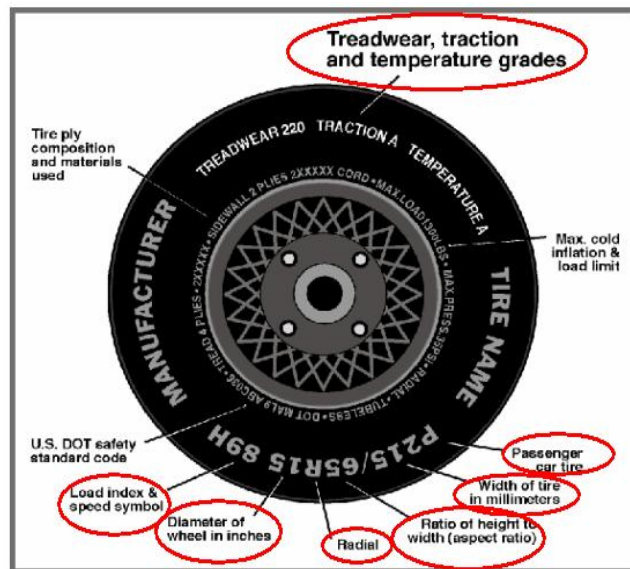
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback

NHTSA No. HB5301

Test Program: MDB Side Impact Test

Test Date: 09/23/10



VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	350	350
Cold Pressure (kpa)	210	210
Recommended Tire Size	P195/55R16	P195/55R16
Tire Size on Vehicle	P195/55R16	P195/55R16
Tire Model	SP Sport 7000 AS	SP Sport 7000 AS
Tire Manufacturer	Dunlop	Dunlop
Treadwear	340	340
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Nylon	1 Polyester, 2 Steel, 1 Nylon
Load Index/Speed Symbol	86V	86V
Tire Material	Polyester, Steel, Nylon	Polyester, Steel, Nylon
DOT Safety Code Right	EUL3 4M7R 2410	EUL3 4M7R 2410
DOT Safety Code Left	EUL3 4M7R 2410	EUL3 4M7R 2410

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback NHTSA No. HB5301
 Test Program: MDB Side Impact Test Test Date: 09/23/10

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	374.5	257.5		406.0	306.0		402.0	313.0	
Right	kg	350.5	234.0		361.0	256.5		358.0	265.5	
Ratio	%	59.6%	40.4%	100.0%	57.7%	42.3%	100.0%	56.8%	43.2%	100.0%
Total	kg	725.0	491.5	1216.5	767.0	562.5	1329.5	760.0	578.5	1338.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1216.5	A
Actual Weight of P572 ATD Used	kg	76.0	B
Rated Cargo/Luggage Wt (RCLW)	kg	44.9	C
Calculated Vehicle Target Wt (TVTW)	kg	1337.4	A+B+C

TEST VEHICLE ATTITUDES

Condition	Units	LF	RF	LR	RR	CG (Aft of Front Axle)
Fully Loaded	mm	641	658	649	659	1049
As Tested	mm	639	651	651	663	1027

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheelbase	mm	2428
Total Vehicle Length at Left Side	mm	2715
Total Vehicle Length at Centerline	mm	4051
Total Vehicle Length at Right Side	mm	2714
Weight of Ballast in Cargo Area	kg	57.0
Weight of Vehicle Components Removed	kg	29.5
Amount of Stoddard Solvent in Fuel Tank	L	37.31

Vehicle components removed to make Target Vehicle Test Weight:

Tail lights (4.0 kg), Rear bumper cover (4.0 kg), Non-struck side door panel (3.5 kg), Trunk liner and trim (3.0 kg), Spare tire and tools (12.5 kg), Non-struck side mirror (1.5 kg), Cargo cover (1.0 kg)

TEST VEHICLE VERTICAL IMPACT LINE DATA

Measurement Description	Units	Value
Target Impact Point Aft of Front Axle	mm	274
Actual Impact Point Aft of Front Axle	mm	260

DATA SHEET NO. 2

SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback

NHTSA No. HB5301

Test Program: MDB Side Impact Test

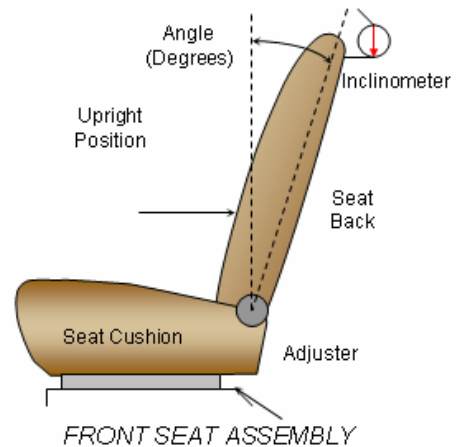
Test Date: 09/23/10

NOMINAL DESIGN RIDING POSITION

The driver's seat back is set to the manufacturer's designated seat angle, measured with a digital inclinometer at the headrest post.

SEAT BACK ANGLES

	Degrees (°)
Driver w/Seated Dummy	9.8
Passenger w/Seated Dummy	



SEAT FORE/AFT POSITION

Driver seat travel is measured with the seat cushion height in the lowermost position. The seat is set to the middle of the fore-aft travel.

SEAT FORE/AFT POSITIONS

Seating Position	Total Fore/Aft Travel	Placed in Position
Driver Seat	245 mm	130 mm
Rear Seat		

SEAT BELT UPPER ANCHORAGE

The seat belt upper anchorage is positioned to the manufacturer's design position for a 50th percentile adult male ATD. The seat belt upper anchorage was fixed.

SEAT BELT UPPER ANCHORAGES

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

DATA SHEET NO. 2 ... (CONTINUED)

SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback

NHTSA No. HB5301

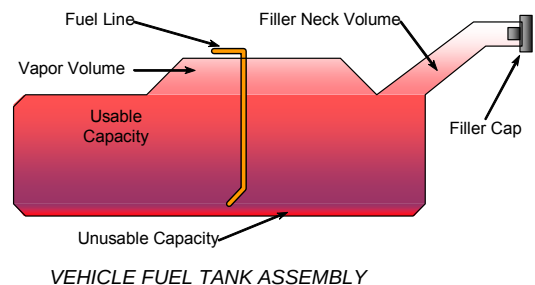
Test Program: MDB Side Impact Test

Test Date: 09/23/10

FUEL TANK CAPACITY

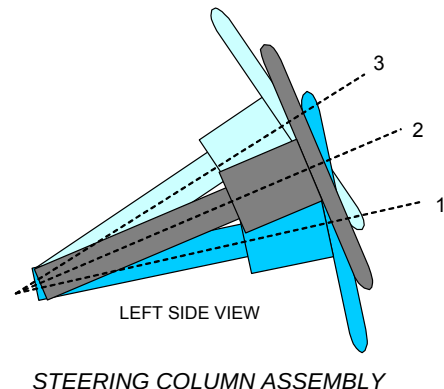
Description	Liters
Usable Capacity of "Standard Tank"	40.12
Usable Capacity of "Optional Tank"	
Usable Capacity Used for FMVSS 301	37.31
Actual Amount of Stoddard Solvent Used	37.31

The test vehicle is equipped with an electric fuel pump. The fuel filler door is located on the left rear fender. The standard fuel tank is located under the area behind the front seat.



STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. A digital inclinometer is used to measure a plate which is placed across the rim of the steering wheel for angular measurements. A tape measure is used with a reference mark on the steering column to measure telescoping travel.



STEERING COLUMN POSITIONING

	Degrees	Fore-Aft Position (mm)
Lowermost Position, No. 1	15.4	0
Geometric Center Position, No. 2	17.4	19
Uppermost Position, No. 3	19.4	38
Telescoping Steering Wheel Travel		38
Test Position	17.4	19

DATA SHEET NO. 3

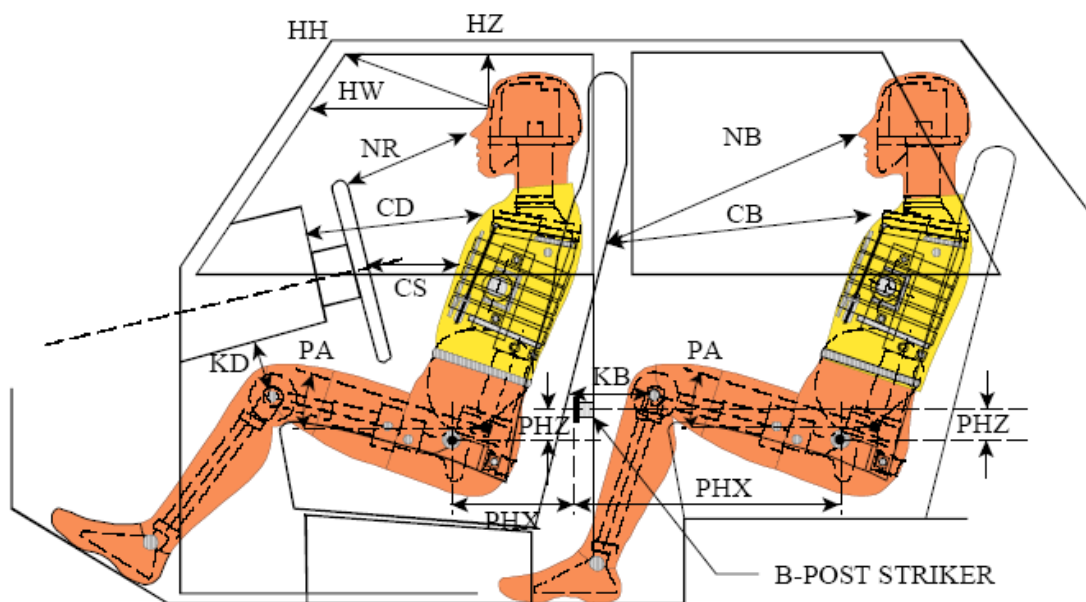
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback

NHTSA No. HB5301

Test Program: MDB Side Impact Test

Test Date: 09/23/10



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	421	16.0		
HW		Head to Windshield	642	0.0		
HZ	HZ	Head to Roof	151	90.0		
NR	NB	Nose to Rim/Seat Back	434	11.5		
CD	CB	Chest to Dash/Seat Back	574	5.1		
CS		Chest to Steering Wheel	331	0.0		
KDL	KBL	Left Knee to Dash/Seat Back	133	50.2		
KDR	KBR	Right Knee to Dash/Seat Back	113	49.4		
PA	PA	Pelvic Angle		18.7		
PHX	PHX	H-Point to Striker (x-axis)	468	0.0		
PHZ	PHZ	H-Point to Striker (z-axis)	307	90.0		
SA	SA	Seat Back Angle		9.8		

DATA SHEET NO. 4

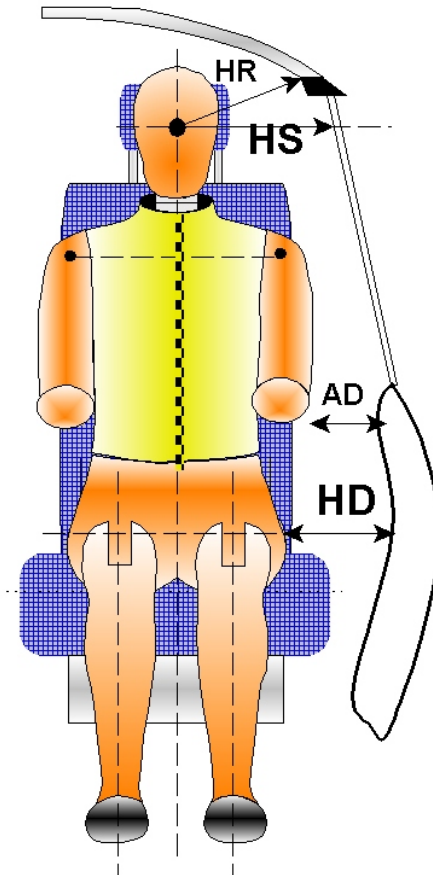
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback

NHTSA No. HB5301

Test Program: MDB Side Impact Test

Test Date: 09/23/10



DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver	Passenger
HR	Head to Side Header	mm	198	
HS	Head to Side Window	mm	272	
AD	Arm to Door	mm	85	
HD	H-Point to Door	mm	144	

DATA SHEET NO. 5

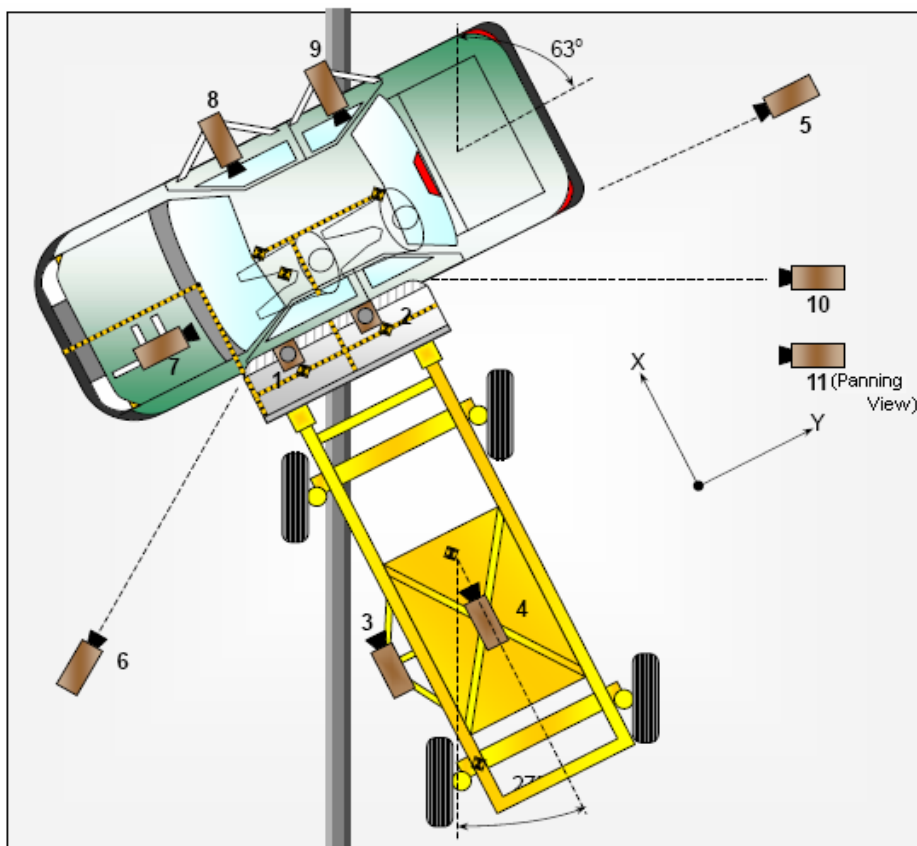
CAMERA LOCATIONS AND DATA

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback

NHTSA No. HB5301

Test Program: MDB Side Impact Test

Test Date: 09/23/10



CAMERA LOCATIONS AND DATA

Camera No.	View	Coordinates (mm)			Angle	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
1	Overhead Overall	1220	2287	-5486	90	14	1000
2	Overhead Close-Up	609	2287	-5102	90	Zoom	1000
3	Left Impact Point (MDB)	-2134	0	-1143	7.5	25	1000
4	Side Overall (MDB)	-3912	838	-1829	11.9	12	1000
5	Rear	-64	2485	-1348	0	105	1000
6	Left Front	-2266	-3564	-1475	0	24	1000
7	Driver Front (On-Board)	407	-586	491	6.2	35	1000
8	Driver Side (On-Board)	1434	886	426	15.3	14	1000
9	Passenger Side (On-Board)						
10	Real Time Left Rear						
11	Real Time Inrun	-2484	-3958	-1506		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

DATA SHEET NO. 6

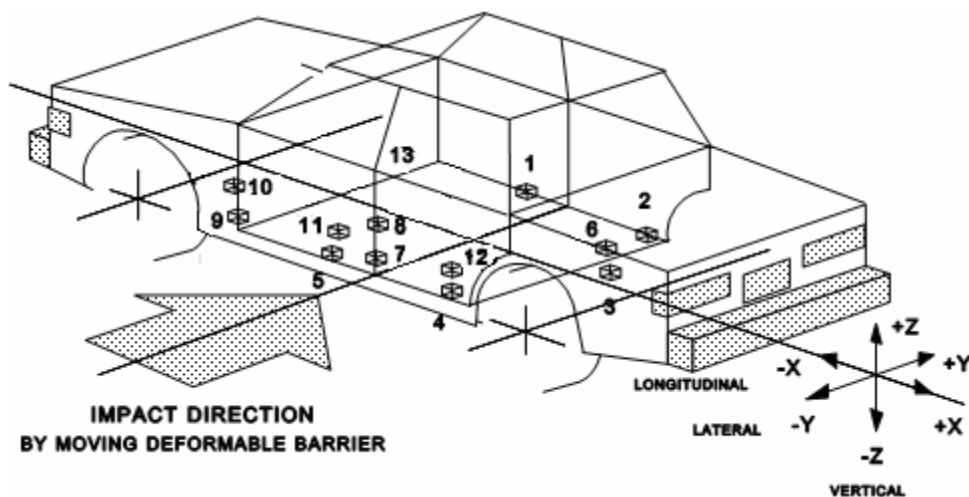
VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback

NHTSA No. HB5301

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VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

Loc. No.	Sensor Description	Coordinates (mm)		
		X	Y	Z
1	Right Sill at Front Seat	-1920	670	330
2	Right Sill at Rear Seat			
3	Rear Floorpan Above Axle	-716	330	500
4	Left Sill at Rear Door			
5	Left Sill at Front Door	-1540	-760	170
6	Right Rear Occupant Compartment	-1690	590	200
7	B-Pillar Lower			
8	B-Pillar Mid			
9	A-Pillar Lower	-2640	-780	480
10	A-Pillar Mid	-2640	-780	700
11	Front Seat Track	-1720	-560	230
12	Rear Seat Structure			
13	Vehicle CG	-1260	0	590

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

DATA SHEET NO. 7

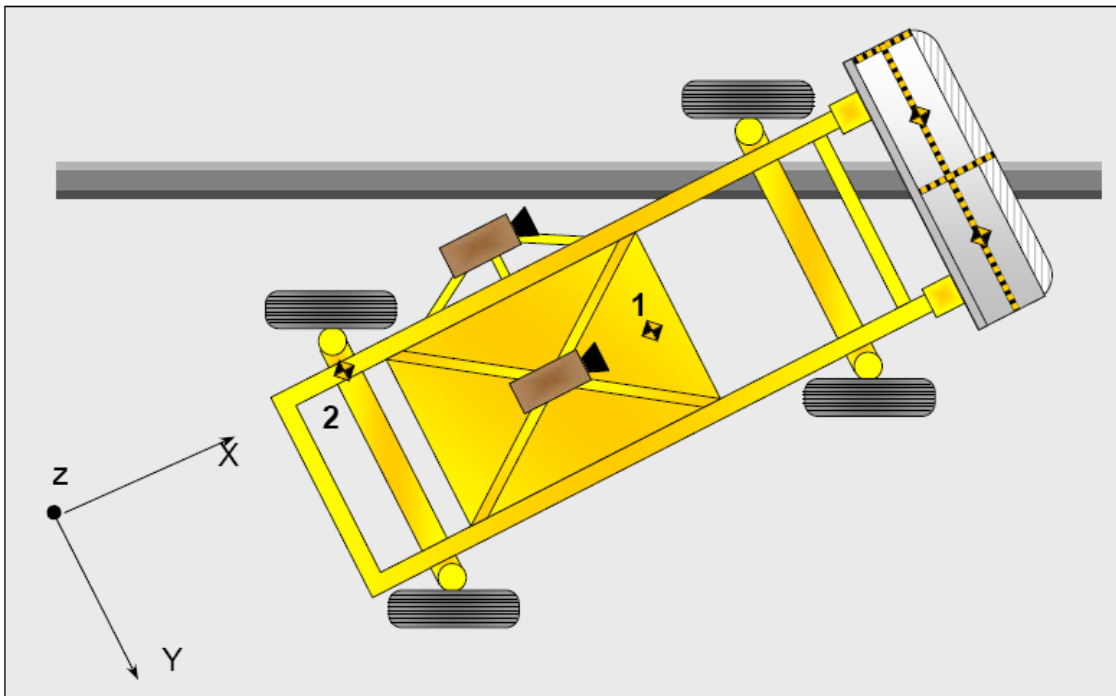
MDB ACCELEROMETER LOCATIONS

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback

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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 (+ rearward)
Y – MDB centerline (+ to right)
Z – Ground plane (+ up)

DATA SHEET NO. 8**TEST VEHICLE SUMMARY OF RESULTS**

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback NHTSA No. HB5301
Test Program: MDB Side Impact Test Test Date: 09/23/10

MAXIMUM EXTERIOR CRUSH

Level	Description	Units	Maximum Crush	Above Ground
1	Sill Top Height	mm	28	213
2	Occupant H-Point Height	mm	190	450
3	Mid-Door Height	mm	231	617
4	Window Sill Height	mm	191	792
5	Window Top Height	mm	30	1270
	Maximum Penetration	mm	231	

INSTRUMENTATION

Driver Dummy Channels	16
Passenger Dummy Channels	0
Airbag Timing Sensors	2
Vehicle Structure Accelerometers	21
MDB Accelerometers	5
Total No. of Contact Switches	5
Total	49

CAMERA COVERAGE

High-Speed Vehicle On-Board	2
High-Speed Vehicle Off-Board	5
High-Speed MDB On-Board	2
Real Time Panning	1
Total	10

DATA SHEET NO. 9**MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS**Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door HatchbackNHTSA No. HB5301Test Program: MDB Side Impact TestTest Date: 09/23/10**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	
Right	kg	377	292	
Ratio	%	56.9%	43.1%	
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	61.80
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	61.68
MDB CL to Target Vehicle CL	degrees	88.5-91.5	89.0

MAXIMUM STATIC CRUSH OF HONEYCOMB FACE

Vertical Location			From Centerline		Max. Crush (mm)
Row	Description	Height (mm)	Distance (mm)	Direction	
1	Center of Bumper	432	700	Left	262
2	Top of Bumper	533	500	Right	77
3	Mid Level	686	800	Left	142
4	Top of Stack	813	800	Left	128

MDB INSTRUMENTATION AND CAMERAS

Accelerometers	5
Contact Switches	2

DATA SHEET NO. 10

POST-TEST OBSERVATIONS

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback

NHTSA No. HB5301

Test Program: MDB Side Impact Test

Test Date: 09/23/10

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat Dummy (ES-2re)	Rear Seat Dummy (SID-IIs)
Dummy Type/Serial No.	ES-2re, S/N: F035	
Head Contact	Curtain Airbag, Side Header, Head Restraint	
Upper Torso Contact	Door Panel, Side Torso Airbag	
Lower Torso Contact	Side Torso Airbag	
Left Knee Contact	Door Panel, Right Knee, Knee Bolster	
Right Knee Contact	Left Knee	

POST-TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Left Side Door Opening	Jammed shut	
Right Side Door Opening	Remained closed and operational	
Hatch and Other Doors	Remained closed and operational	
Seat Movement	None	
Seatback Failure	No	

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions	
Pillar Performance	No separation occurred	
Sill Separation	No separation occurred	
Windshield Damage	Cracked	
Window Damage	Broken	Broken
Other Notable Effects	None	

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

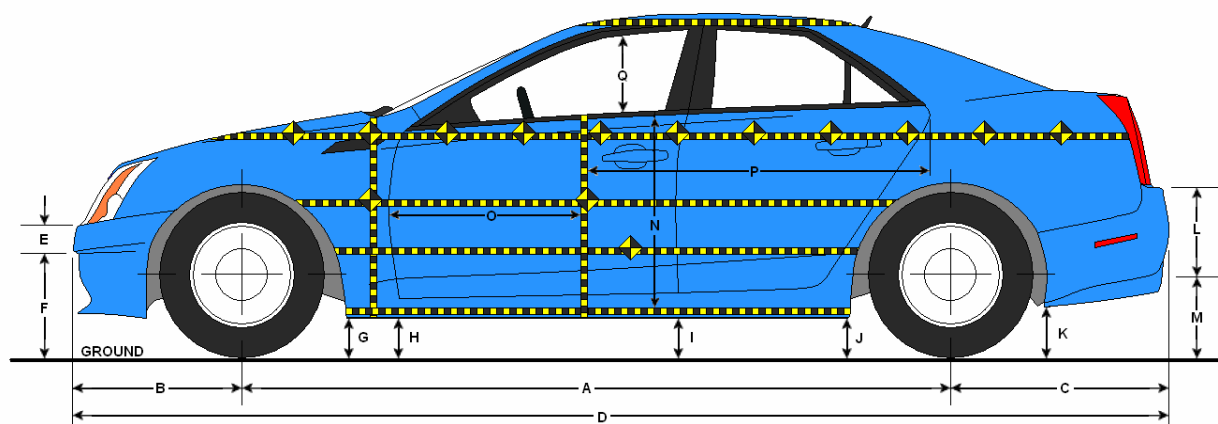
Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Installed	Deployed	Installed	Deployed
Frontal Airbag	Yes	Yes		
Knee Airbag	No			
Side Airbag 1 (Torso/Pelvis)	Yes	Yes		
Side Airbag 2 (Curtain)	Yes	Yes		
Seat Belt Pretensioner	Yes	Yes		
Seat Belt Load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

MDB LEFT EDGE IMPACT POINT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	-14 (Left)
Vertical Offset	mm	+/- 20	+10 (Up)

DATA SHEET NO. 11
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback NHTSA No. HB5301
Test Program: MDB Side Impact Test Test Date: 09/23/10



LEFT SIDE VIEW

VEHICLE PRE AND POST-TEST MEASUREMENT INFORMATION

Code	Dimension	Measurement (mm)		
		Pre	Post	Difference
A	Wheelbase	2428	2769	341
B	Front Axle to FSOV	950	961	11
C	Rear Axle to RSOV	673	667	-6
D	Total Length at Centerline	4051	4057	6
E	Front Bumper Thickness	113	112	-1
F	Front Bumper Bottom to Ground	386	404	18
G	Sill Height at Front Wheel Well	149	224	75
H	Sill Height at Front Door Leading Edge	150	227	77
I	Sill Height at B-Pillar	186	266	80
J1	Sill Height at Rear Wheel Well	171	256	85
J2	Pinch Weld Height at Rear Wheel Well	161	210	49
K	Sill Height Aft of Rear Wheel Well	420	455	35
L	Rear Bumper Thickness	86	85	-1
M	Bottom of Rear Bumper to Ground	407	449	42
N	Sill Height to Window Bottom Sill	558	516	-42
O	Front Door Leading Edge to Impact CL	684	669	-15
P	Rear Door Trailing Edge to Impact CL	1626	1387	-239
Q	Front Window Opening	380	390	10
R	Right Side Length	2714	2716	2
S	Left Side Length	2715	2683	-32
T	Vehicle Width at B-Pillar	1736	1613	-123

All measurements in (mm) with tolerance of ± 3 mm

DATA SHEET NO. 12

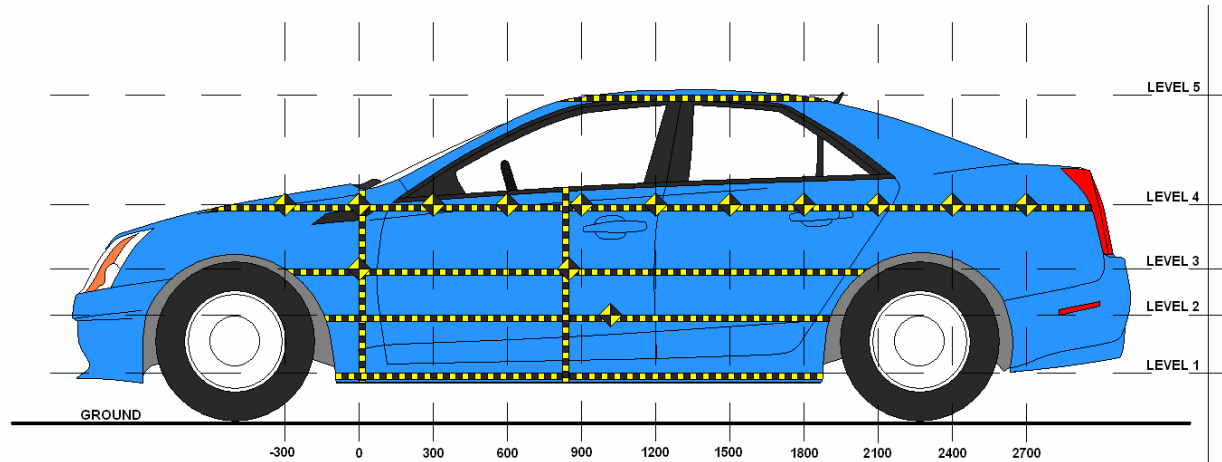
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback

NHTSA No. HB5301

Test Program: MDB Side Impact Test

Test Date: 09/23/10



LEFT SIDE VIEW

Level	Description	Height Above Ground (mm)
1	Sill Top Height	213
2	Occupant H-Point Height	450
3	Mid-Door Height	617
4	Window Sill Height	792
5	Window Top Height	1270

DATA SHEET NO. 12 ... (CONTINUED)

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback

NHTSA No. HB5301

Test Program: MDB Side Impact Test

Test Date: 09/23/10

	Pre-Test (mm)					Post-Test (mm)					Difference (mm)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600															
-450															
-300															
-150				723					744					21	
0			632	710				713	744				81	34	
150	656	633	646	702		676	782	732	744		20	149	86	42	
300	661	638	646	692		687	826	766	789		26	188	120	97	
450	651	640	644	685		679	830	816	836		28	190	172	151	
600	646	642	643	678		674	831	826	846		28	189	183	168	
750	643	645	643	676	959	671	828	843	848	976	28	183	200	172	17
900	647	650	645	680	955	673	825	850	860	974	26	175	205	180	19
1050	650	654	646	685	953	676	826	861	864	976	26	172	215	179	23
1200	653	657	649	686	955	681	827	867	862	982	28	170	218	176	27
1350	643	657	652	686	961	669	823	873	866	991	26	166	221	180	30
1500	680	655	653	675	970	700	816	857	825	998	20	161	204	150	28
1650	667	647	650	694	982	691	816	864	885	1003	24	169	214	191	21
1800	664	637	640	692	997	691	786	871	861	1012	27	149	231	169	15
1950			630	687	1013			849	788	1029			219	101	16
2100				685					748					63	
2250				690					734					44	
2400															
2550															
2700															
2850															

MAXIMUM CRUSH DATA

	Level 1	Level 2	Level 3	Level 4	Level 5
Maximum Crush (mm)	28	190	231	191	30
Distance from Impact (mm)	450	450	1800	1650	1350

DATA SHEET NO. 12 ... (CONTINUED)

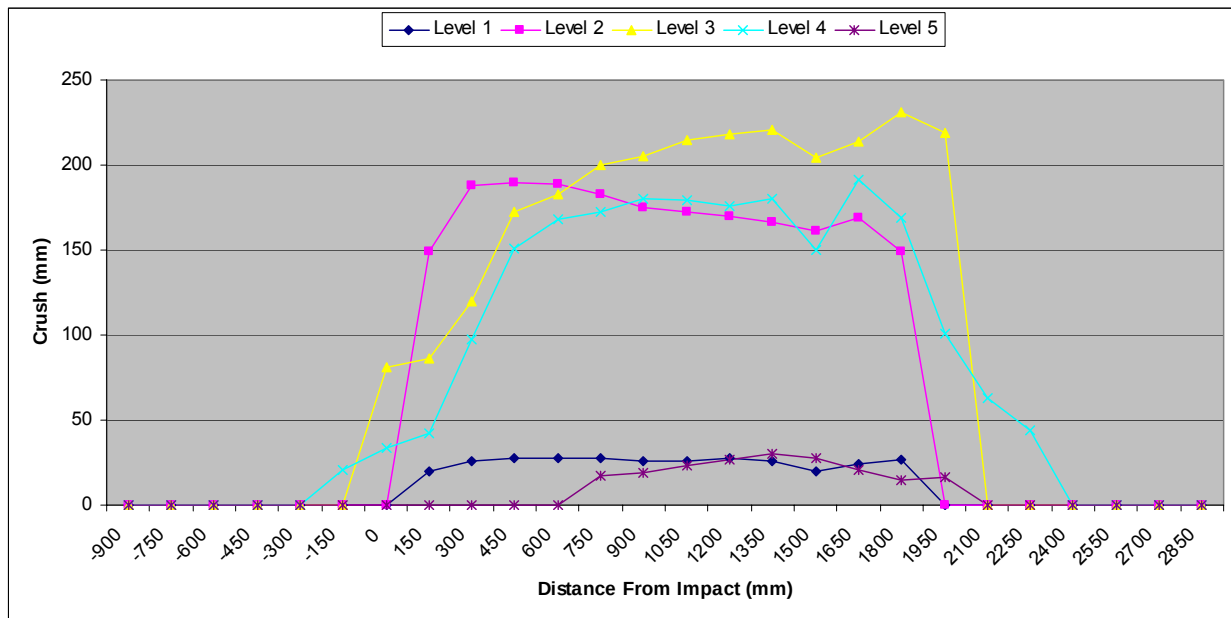
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback

NHTSA No. HB5301

Test Program: MDB Side Impact Test

Test Date: 09/23/10



DATA SHEET NO. 13

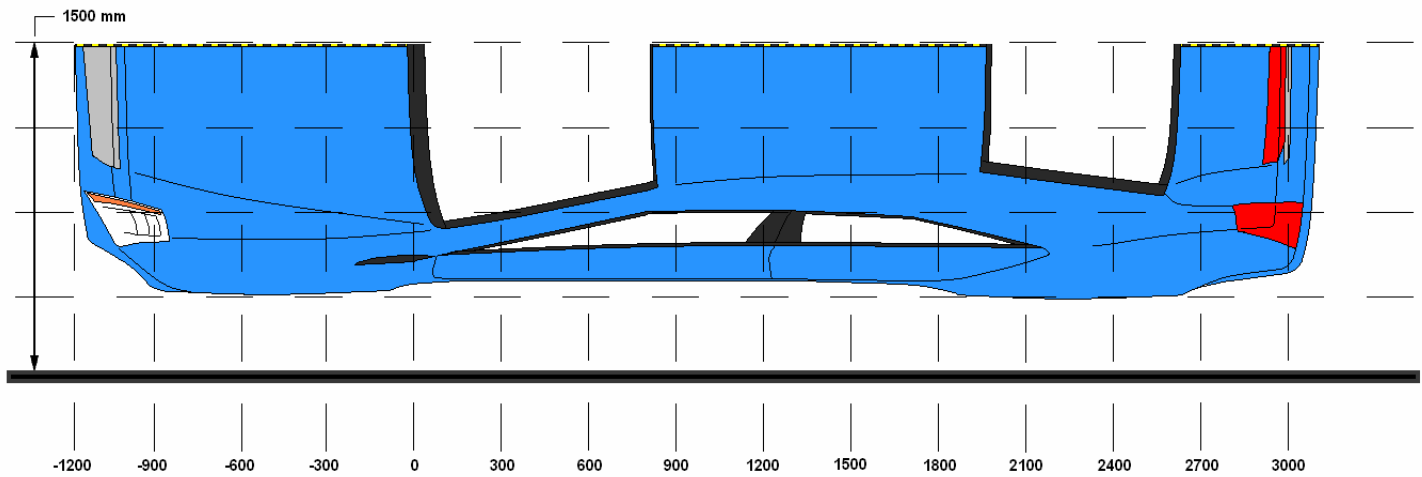
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback

NHTSA No. HB5301

Test Program: MDB Side Impact Test

Test Date: 09/23/10



DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max. Static Crush (mm)
1	2250	4	690	734	44
2	1800	3	640	871	231
3	1350	3	652	873	221
4	900	3	645	850	205
5	450	2	640	830	190
6	0	3	632	713	81

DATA SHEET NO. 14

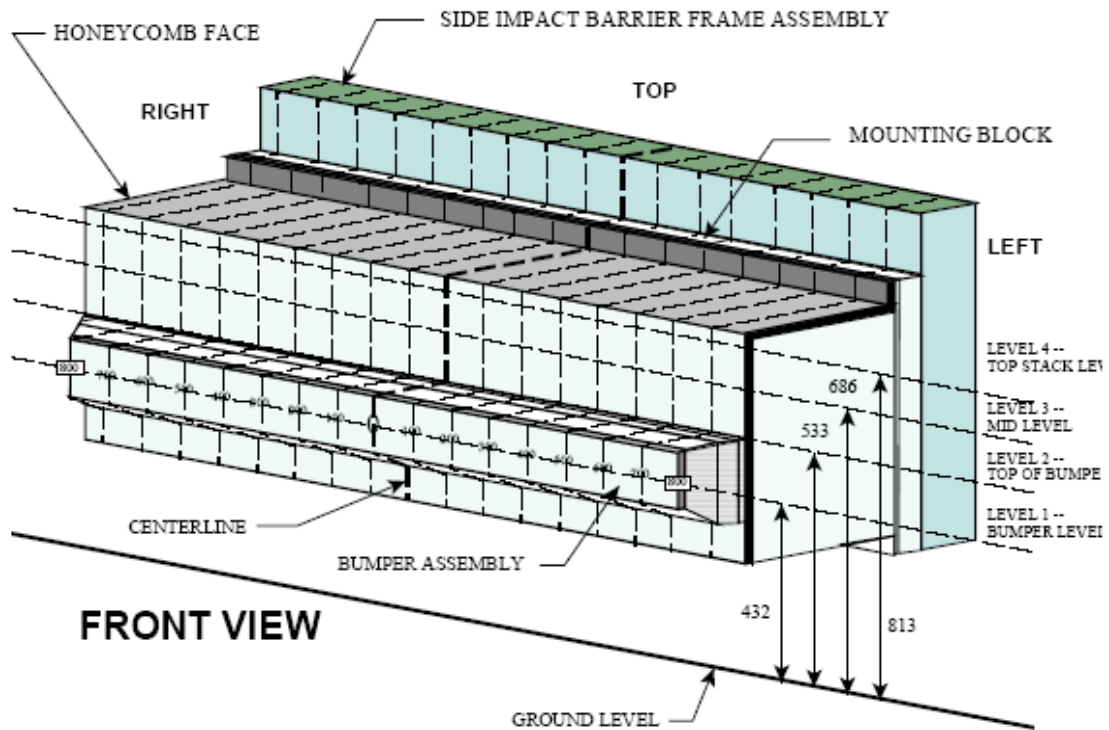
EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback

NHTSA No. HB5301

Test Program: MDB Side Impact Test

Test Date: 09/23/10



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	196	202	196	193	186	170	156	145	143	136	136	138	146	148	156	262	171
2	71	64	67	77	67	55	39	36	35	39	42	47	48	54	59	64	74
3	31	26	55	49	26	14	12	11	14	14	12	12	16	21	44	94	142
4	43	22	51	33	16	4	0	2	-1	1	7	13	21	40	106	107	128

All dimensions in millimeters.

DATA SHEET NO. 15

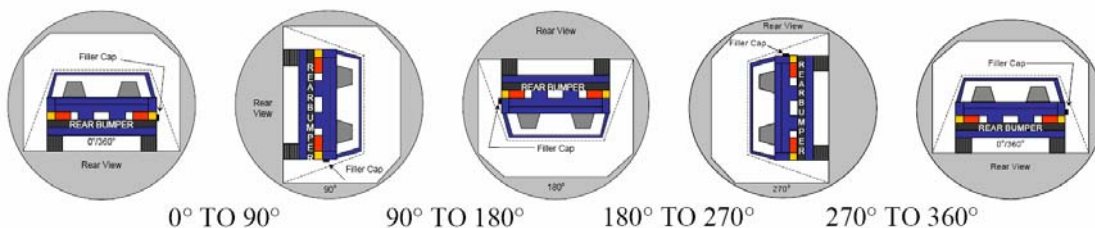
FMVSS NO. 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback NHTSA No. HB5301
 Test Program: MDB Side Impact Test Test Date: 09/23/10

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 33.3° C Test Time: 1:35 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°	83	445	528
90° To 180°	80	365	445
180° To 270°	76	330	406
270° To 360°	73	300	373

FMVSS 301 SPILLAGE TABLE

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

SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0° To 90°	None
90° To 180°	None
180° To 270°	None
270° To 360°	None

DATA SHEET NO. 16**FMVSS NO. 305 ELECTRIC VEHICLE PROPULSION SYSTEM DATA**Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door HatchbackNHTSA No.: HB5301Test Program: MDB Side Impact TestTest Date: 09/23/10**ELECTRIC VEHICLE PROPULSION SYSTEM DATA**

Type of Electric Vehicle	Gas-Electric Hybrid
Propulsion Battery Type	Ni-MH
Nominal Voltage	100 V
Physical Location of Automatic Propulsion Battery Disconnect	No Automatic Disconnect
Auxilliary Battery Type	Lead-Acid Battery

PROPULSION BATTERY SYSTEM DATA

Electrolyte Fluid Type	
Electrolyte Fluid Specific Gravity	
Electrolyte Fluid Kinematic Viscosity	
Electrolyte Fluid Color	Orange
Propulsion Battery Coolant Type, Color, Specific Gravity	
Location of Battery Modules	Rear Cargo Compartment

DATA SHEET NO. 17

FMVSS NO. 305 POST-IMPACT DATA

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback

NHTSA No.: HB5301

Test Program: MDB Side Impact Test

Test Date: 09/23/10

ELECTROLYTE SPILLAGE MEASUREMENTS

A. From impact until 30 minutes later: 0.0 L

(Maximum Allowable = 5.0 L total)

B. Spillage Details: No leakage occurred

MEASUREMENT DESCRIPTIONS

Code	Units	Description
V_b	V	Propulsion Battery Voltage
V_1	V	Propulsion Battery Negative to Chassis
V_2	V	Propulsion Battery Positive to Chassis
R_o	Ω	Resistance of Grounding Circuit
V_1'	V	Propulsion Battery Negative to Chassis with R_o installed
V_2'	V	Propulsion Battery Positive to Chassis with R_o installed
R_{i1}	Ω	Electrical Isolation Value of Propulsion Battery Negative to Chassis Ground
R_{i2}	Ω	Electrical Isolation Value of Propulsion Battery Positive to Chassis Ground
R_i	Ω	Electrical Isolation Value of Propulsion Battery - The Minimum of R_{i1} and R_{i2}
R_i/V_b	Ω/v	Electrical Isolation per Volt of Propulsion Battery

ELECTRICAL ISOLATION DATA

Code	Units	Threshold	Pre-Test	Post-Test
V_b	V		108.6	108.6
V_1	V		0.0	0.0
V_2	V		0.0	0.0
R_o	Ω		219,500	219,500
V_1'	V		0.0	0.0
V_2'	V		0.0	0.0
R_{i1}	Ω		Zero Volts	Zero Volts
R_{i2}	Ω		Zero Volts	Zero Volts
R_i	Ω		Zero Volts	Zero Volts
R_i/V_b	Ω/V	500	Zero Volts*	Zero Volts*

* "Zero Volts" is considered as being compliant.

DATA SHEET NO. 18

FMVSS NO. 305 STATIC ROLLOVER DATA

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback

NHTSA No.: HB5301

Test Program: MDB Side Impact Test

Test Date: 09/23/10

STATIC ROLLOVER ELECTRICAL ISOLATION DATA

Code	Units	Threshold	Rollover Position			
			90°	180°	270°	360°
V_b	V		0.0	0.0	0.0	0.0
V_1	V		0.0	0.0	0.0	0.0
V_2	V		0.0	0.0	0.0	0.0
R_o	Ω		219,500	219,500	219,500	219,500
V_1'	V		0.0	0.0	0.0	0.0
V_2'	V		0.0	0.0	0.0	0.0
R_{i1}	Ω		Zero Volts	Zero Volts	Zero Volts	Zero Volts
R_{i2}	Ω		Zero Volts	Zero Volts	Zero Volts	Zero Volts
R_i	Ω		Zero Volts	Zero Volts	Zero Volts	Zero Volts
R_i/V_b	Ω/V	500	Zero Volts*	Zero Volts*	Zero Volts*	Zero Volts*

FMVSS 305 Requirements: Maximum allowable propulsion battery electrolyte spillage is 5.0 L.

FMVSS 305 ELECTROLYTE SPILLAGE REQUIREMENT

Maximum Allowable Spillage	5.0L throughout impact test and static rollover
----------------------------	---

FMVSS 305 ELECTROLYTE COLLECTED

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

ELECTROLYTE SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0° to 90°	None
90° to 180°	None
180° to 270°	None
270° to 360°	None

* "Zero Volts" is considered as being compliant.

DATA SHEET NO. 19

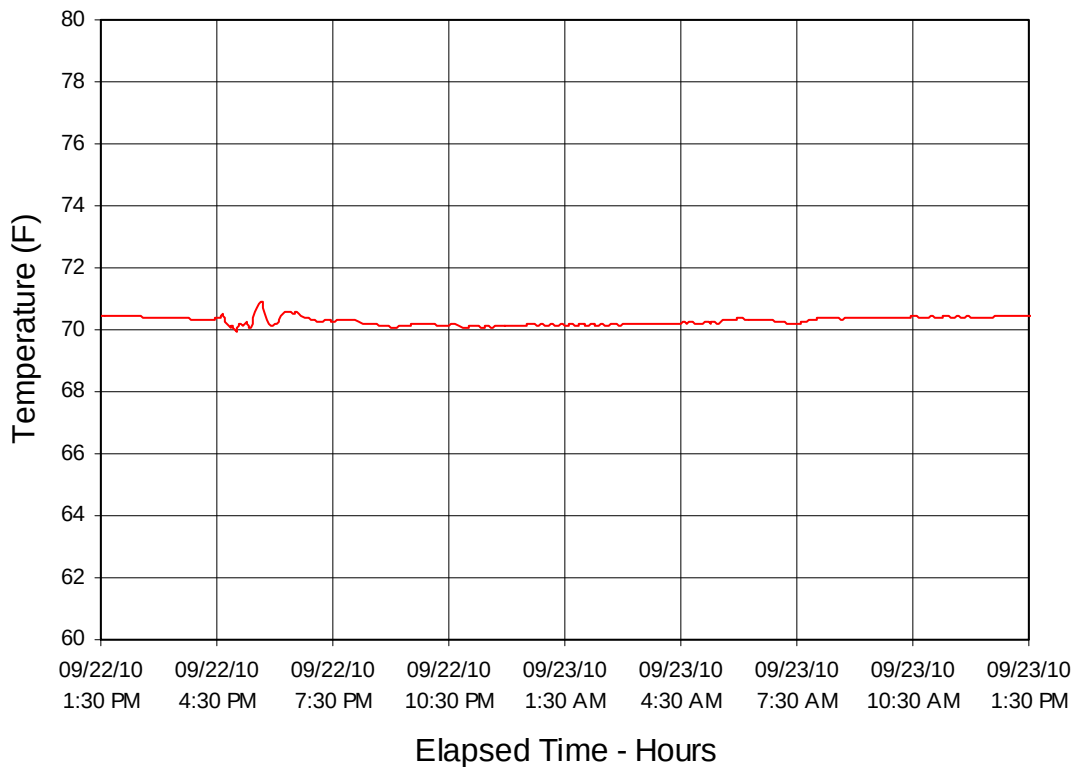
DUMMY / VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback

NHTSA No. HB5301

Test Program: MDB Side Impact Test

Test Date: 09/23/10



APPENDIX A
PHOTOGRAPHS

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130	Pre-Test Battery Mounting Hardware	A-65
131	Post-Test Battery Mounting Hardware	A-66
132	Pre-Test Battery Mounting Hardware	A-66
133	Post-Test Battery Mounting Hardware	A-67
134	Pre-Test Battery Mounting Hardware	A-67
135	Post-Test Battery Mounting Hardware	A-68
136	Pre-Test Battery Mounting Hardware	A-68
137	Post-Test Battery Mounting Hardware	A-69
138	Pre-Test Battery Mounting Hardware	A-69
139	Post-Test Battery Mounting Hardware	A-70



FIGURE 1. As-Delivered Right Front Three-Quarter View of Test Vehicle



FIGURE 2. As-Delivered Left Rear Three-Quarter View of Test Vehicle



FIGURE 3. Pre-Test Frontal View of Test Vehicle

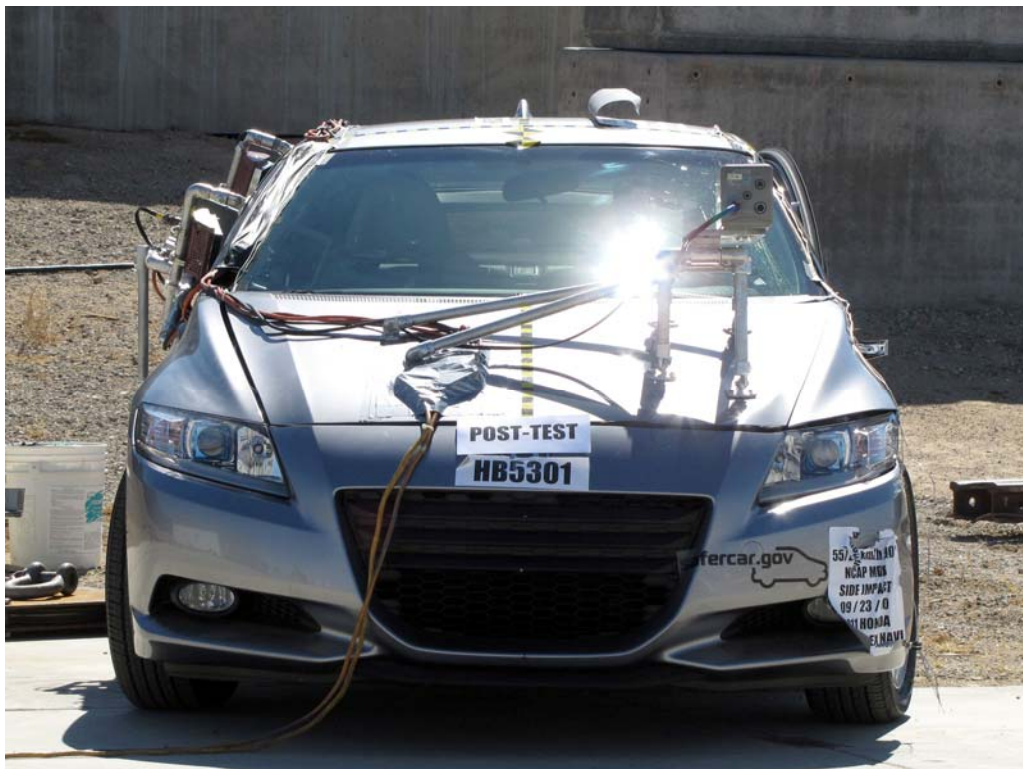


FIGURE 4. Post-Test Frontal View of Test Vehicle



FIGURE 5. Pre-Test Left Front Three-Quarter View of Test Vehicle



FIGURE 6. Post-Test Left Front Three-Quarter View of Test Vehicle

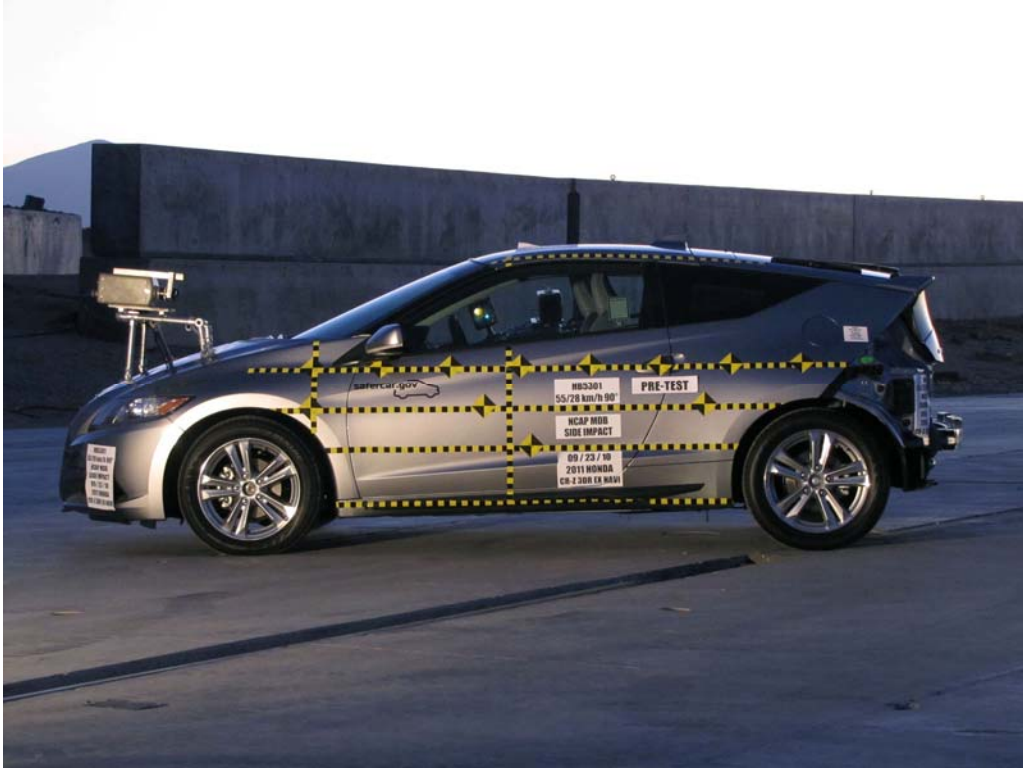


FIGURE 7. Pre-Test Left Side View of Test Vehicle



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



FIGURE 9. Pre-Test Left Rear Three-Quarter View of Test Vehicle



FIGURE 10. Post-Test Left Rear Three-Quarter 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 Vehicle
with MDB Positioned Against Side of Test Vehicle



FIGURE 16. Post-Test Overhead View of Test Vehicle and MDB



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



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



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



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



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



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

Photograph Not Applicable
Not Equipped With
Rear Doors

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

Photograph Not Applicable
Not Equipped With
Rear Doors

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. Pre-Test View of Parking Brake



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



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



FIGURE 40. Pre-Test Close-Up View of Driver Seat Back or Head Restraint



FIGURE 41. Pre-Test Driver Dummy and Door Clearance View



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



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



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



FIGURE 45. Pre-Test Driver Inner Door Panel View



FIGURE 46. Post-Test Driver Inner Door Panel View
Showing Driver Dummy Contact Locations



FIGURE 47. Post-Test Driver Dummy Close-Up Head Contact with Vehicle



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

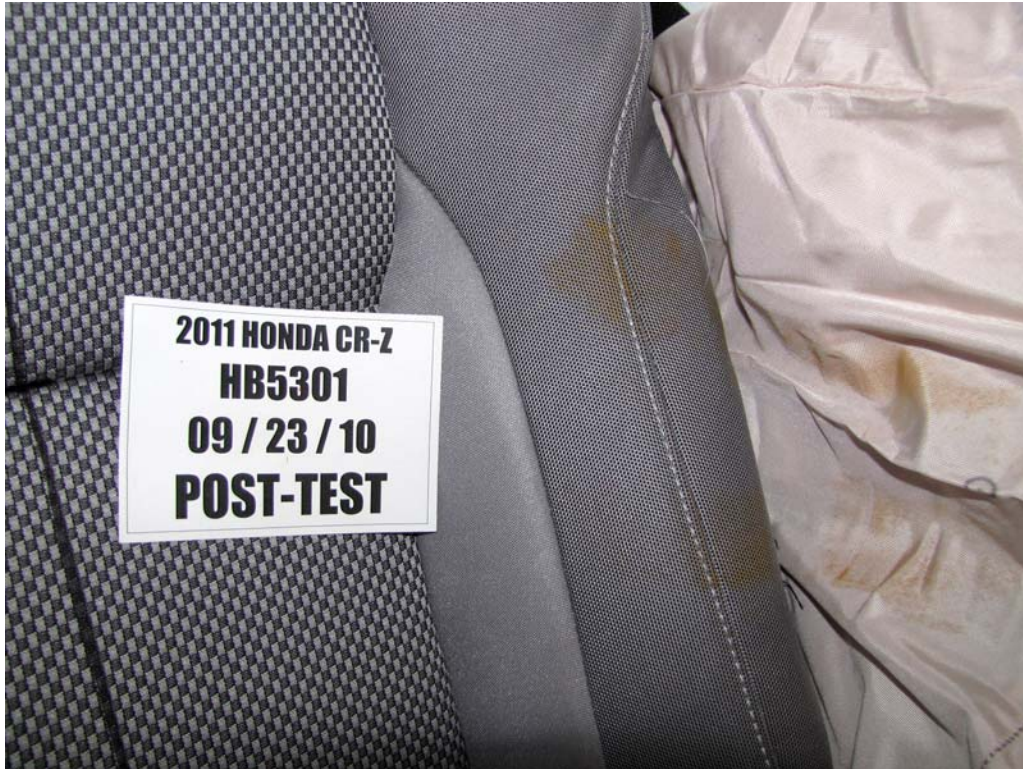


FIGURE 49. Post-Test Driver Dummy Close-Up Torso Contact with Vehicle Interior View



FIGURE 50. Post-Test Driver Dummy Close-Up Torso Contact with Side Airbag View



FIGURE 51. Post-Test Driver Dummy Close-Up Pelvis Contact

Photograph Not Applicable

No Dummy Pelvis Contact
with Side Airbag

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

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

FIGURE 53. Pre-Test Left Side View of Rear Passenger Dummy
Showing Belt, Chalking, and Contact Switches

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

FIGURE 54. Pre-Test Left Side View of Rear Passenger Dummy
Shoulder and Door Top View

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

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

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

FIGURE 56. Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

FIGURE 57. Pre-Test Frontal View of Rear Passenger Dummy
Head and Shoulders in Relation to Head Restraint

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

FIGURE 58. Pre-Test Overhead View of Rear Passenger
Seat Pan Prior to Dummy Positioning

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

FIGURE 59. Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

FIGURE 60. Pre-Test View of Rear Passenger Dummy's Neck
Showing Position of Adjustable Neck Bracket

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

FIGURE 61. Pre-Test View of Rear Passenger Dummy's Head Showing Dummy's Head
is Level

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

FIGURE 62. Pre-Test Placement of Rear Passenger Dummy's Feet

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

FIGURE 63. Pre-Test View of Belt Anchorage for Rear Passenger Dummy

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

FIGURE 64. Pre-Test Close-Up Left Side View of Rear Passenger Seat Track

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

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

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

FIGURE 66. Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

FIGURE 67. Pre-Test Rear Passenger Dummy and Door Clearance View

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

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

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

FIGURE 69. Pre-Test Right Side View of Rear Passenger Dummy
and Rear Seat Occupant Compartment

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

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

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

FIGURE 71. Pre-Test Rear Passenger Inner Door Panel View

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

FIGURE 72. Post-Test Rear Passenger Inner Door Panel View
Showing Dummy Contact Locations

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

FIGURE 73. Post-Test Rear Passenger Dummy Close-Up
Head Contact with Vehicle View

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

FIGURE 74. Post-Test Rear Passenger Dummy Close-Up
Head Contact With Side Airbag View

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

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

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

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

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

FIGURE 77. Post-Test Rear Passenger Dummy Close-Up Pelvis Contact View

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

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



FIGURE 79. Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



FIGURE 80. Post-Test View of Fuel Filler Cap or Fuel Filler Neck



FIGURE 81. Pre-Test Front View of MDB Impactor Face



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



FIGURE 83. Pre-Test Top View of MDB Impactor Face



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



FIGURE 85. Pre-Test Left Side View of MDB Impactor Face



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



FIGURE 87. Pre-Test Right Side View of MDB Impactor Face



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



FIGURE 89. Close-Up View of Vehicle's Certification Label



FIGURE 90. Close-Up View of Vehicle's Tire Information Placard

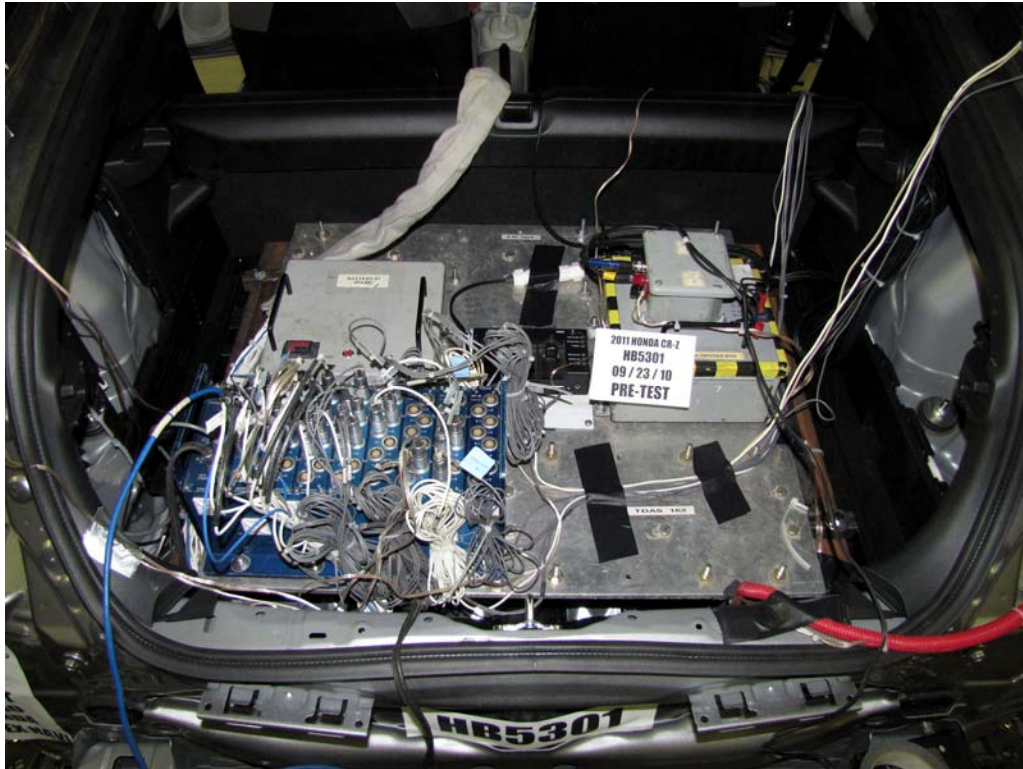


FIGURE 91. Pre-Test Ballast View

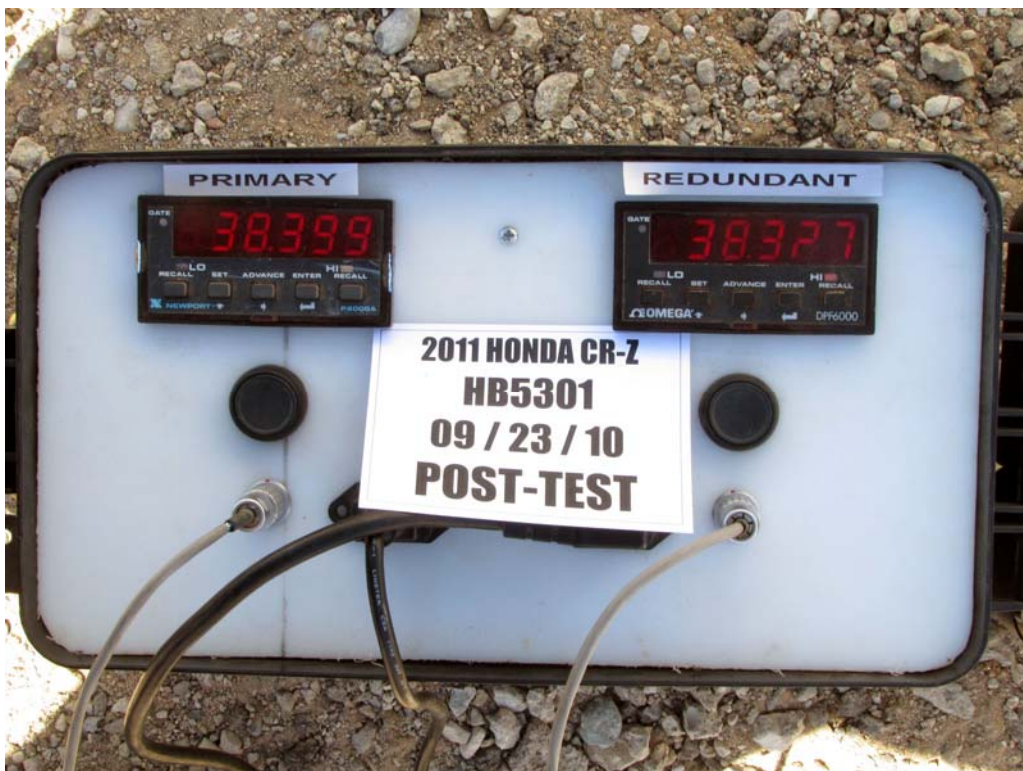


FIGURE 92. Post-Test Primary and Redundant Speed Trap Read-Out



FIGURE 93. FMVSS No. 301-305 Rollover 0 Degrees



FIGURE 94. FMVSS No. 301-305 Rollover 90 Degrees



FIGURE 95. FMVSS No. 301-305 Rollover 180 Degrees



FIGURE 96. FMVSS No. 301-305 Rollover 270 Degrees



FIGURE 97. FMVSS No. 301-305 Rollover 360 Degrees



FIGURE 98. Impact Event

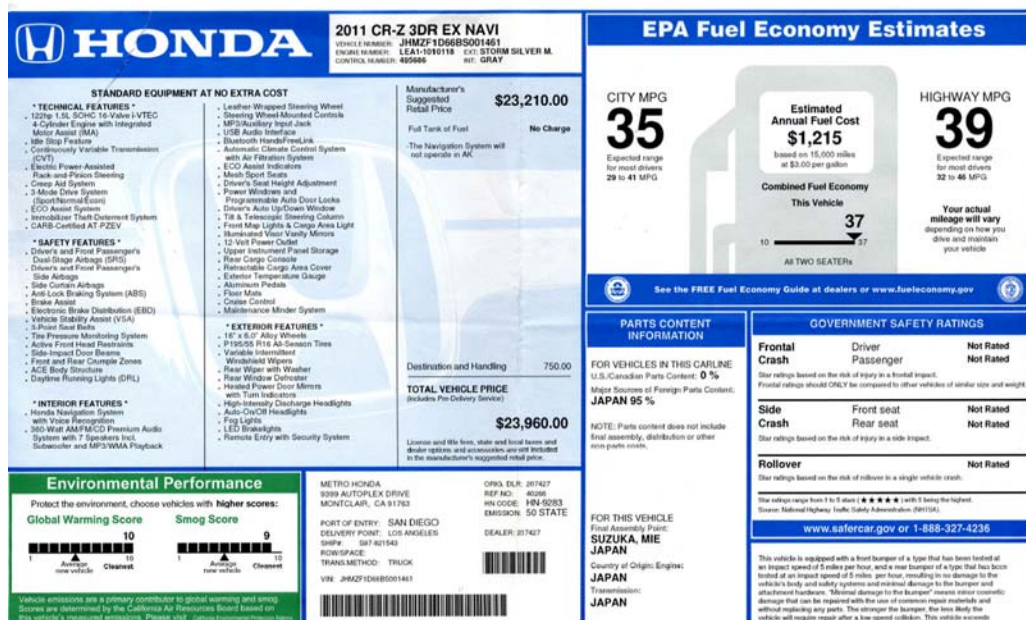


FIGURE 99. Monroney Label

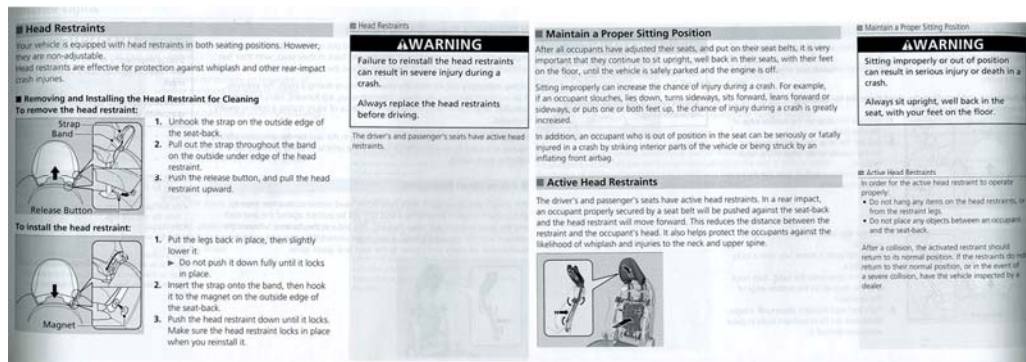


FIGURE 100. Driver Head Restraint Use and Adjustment
 Information from Vehicle Manual

Photograph Not Applicable

Vehicle Not Equipped with
Rear Passenger Seating

FIGURE 101. Left Rear Passenger Head Restraint Use and Adjustment
Information from Vehicle Manual

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Intentionally Left Blank



FIGURE 102. Hybrid System Label



FIGURE 103. Hybrid System Label



FIGURE 104. Hybrid System Label

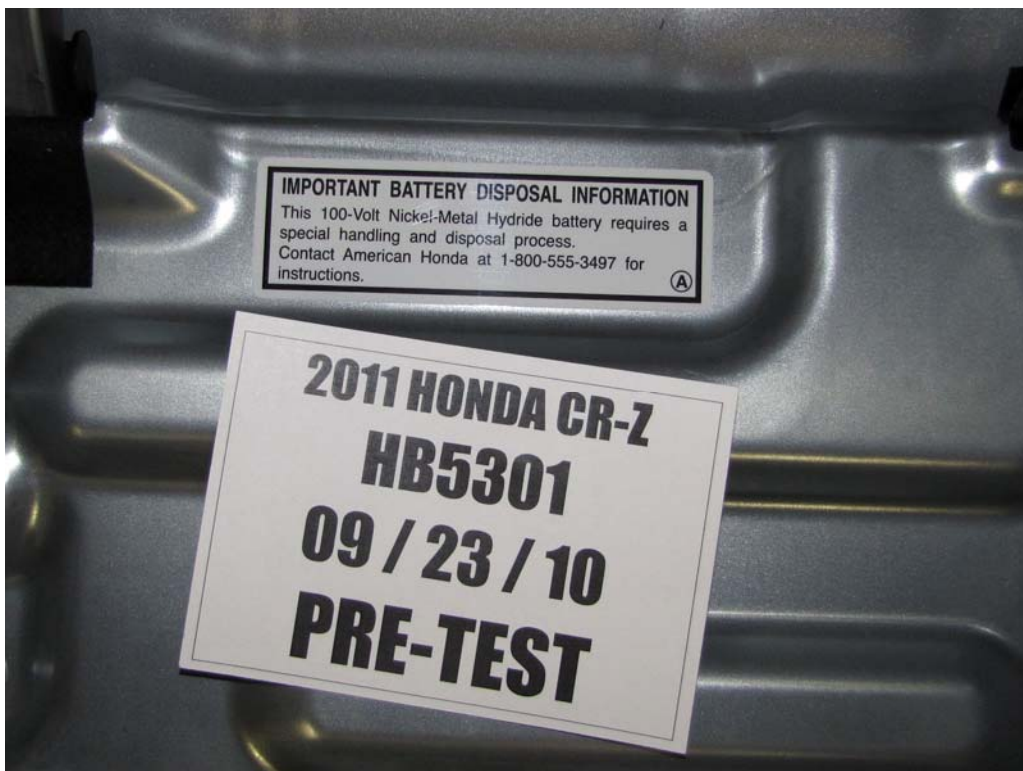


FIGURE 105. Hybrid System Label



FIGURE 106. Hybrid System Label



FIGURE 107. Pre-Test Electrical Propulsion Components



FIGURE 108. Post-Test Electrical Propulsion Components



FIGURE 109. Pre-Test Battery Compartment

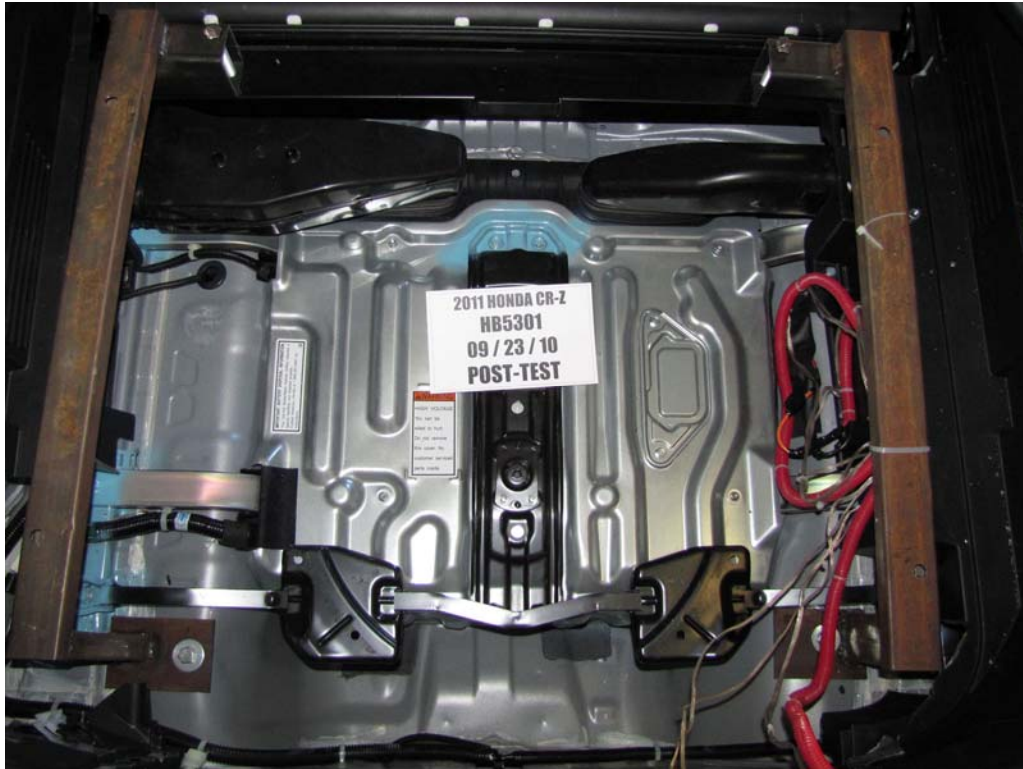


FIGURE 110. Post-Test Battery Compartment



FIGURE 111. Pre-Test Battery Compartment



FIGURE 112. Post-Test Battery Compartment



FIGURE 113. Pre-Test Propulsion Battery Disconnect



FIGURE 114. Post-Test Propulsion Battery Disconnect



FIGURE 115. Pre-Test Propulsion Battery Disconnect



FIGURE 116. Post-Test Propulsion Battery Disconnect

Photograph Not Applicable
No Electrolyte Leakage

FIGURE 117. Post-Test Electrolyte Leakage



FIGURE 118. Pre-Test Battery Mounting Hardware



FIGURE 119. Post-Test Battery Mounting Hardware



FIGURE 120. Pre-Test Battery Mounting Hardware



FIGURE 121. Post-Test Battery Mounting Hardware



FIGURE 122. Pre-Test Battery Mounting Hardware



FIGURE 123. Post-Test Battery Mounting Hardware



FIGURE 124. Pre-Test Battery Mounting Hardware



FIGURE 125. Post-Test Battery Mounting Hardware



FIGURE 126. Pre-Test Battery Mounting Hardware



FIGURE 127. Post-Test Battery Mounting Hardware



FIGURE 128. Pre-Test Battery Mounting Hardware



FIGURE 129. Post-Test Battery Mounting Hardware



FIGURE 130. Pre-Test Battery Mounting Hardware



FIGURE 131. Post-Test Battery Mounting Hardware



FIGURE 132. Pre-Test Battery Mounting Hardware



FIGURE 133. Post-Test Battery Mounting Hardware



FIGURE 134. Pre-Test Battery Mounting Hardware



FIGURE 135. Post-Test Battery Mounting Hardware



FIGURE 136. Pre-Test Battery Mounting Hardware



FIGURE 137. Post-Test Battery Mounting Hardware



FIGURE 138. Pre-Test Battery Mounting Hardware



FIGURE 139. Post-Test Battery Mounting Hardware

APPENDIX B
DUMMY RESPONSE DATA

TABLE OF DATA PLOTS

Plot		Page
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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. The website can be found at

www.NHTSA.dot.gov

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)
Driver Shoulder Contact Switch
Driver Torso Contact Switch
Driver Pelvis Contact Switch
Passenger Head Acceleration Redundant (X)
Passenger Head Acceleration Redundant (Y)
Passenger Head Acceleration Redundant (Z)
Passenger Shoulder Contact Switch
Passenger Torso Contact Switch
Passenger Pelvis Contact Switch

Vehicle Instrumentation Data

Driver Side Airbag Timing
Driver Side Curtain Airbag Timing
Passenger Side Airbag Timing (if applicable)
Passenger Side Curtain Airbag Timing (if different from Driver)
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)
Rear Floorpan Above Axle Acceleration (X)
Rear Floorpan Above Axle Acceleration (Y)
Rear Floorpan Above Axle Acceleration (Z)
Left Side Sill at Front Seat Acceleration (Y)
Left Side Sill at Rear Seat Acceleration (Y)
Right Rear Occupant Compartment Acceleration (Y)
Lower A-Post Acceleration (Y)
Upper A-Post Acceleration (Y)
Lower B-Post Acceleration (Y)
Upper B-Post Acceleration (Y)

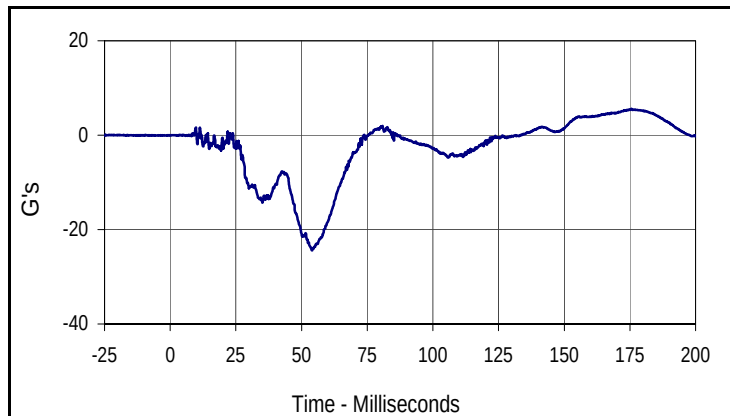
Front Seat Track Acceleration (Y)
Rear Seat Track Acceleration (Y)
Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)

MDB Instrumentation Data

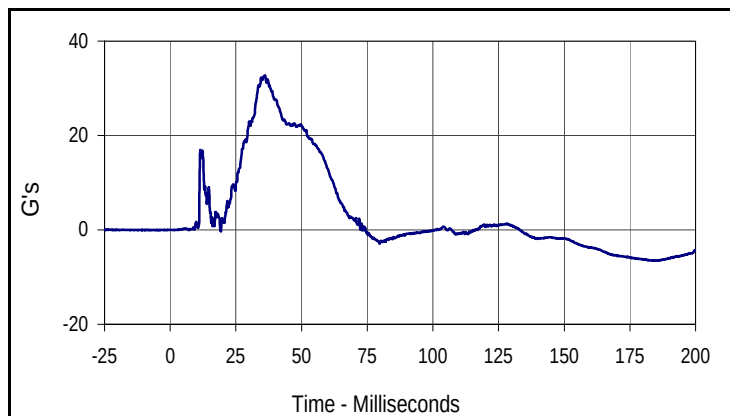
MDB Center of Gravity Acceleration (X)
MDB Center of Gravity Acceleration (Y)
MDB Center of Gravity Acceleration (Z)
MDB Rear Acceleration (X)
MDB Rear Acceleration (Y)
Left MDB Contact Switch
Right MDB Contact Switch

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

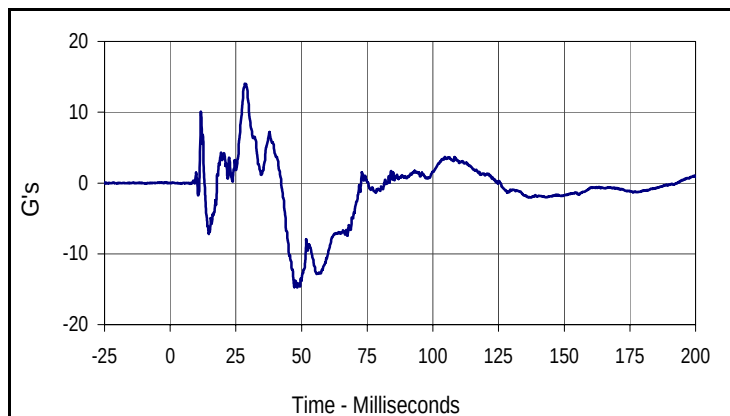
Test Date: 9/23/10
 NHTSA No.: HB5301



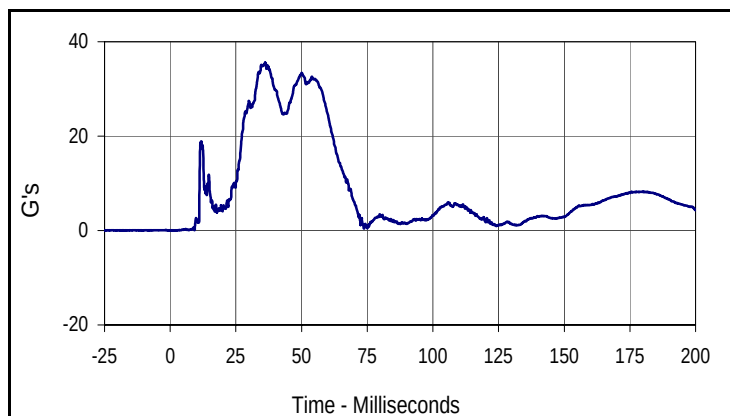
Curve Description			
Driver Head Acceleration X Primary			
CURNO	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
5.6	175.5	-24.4	53.9



Curve Description			
Driver Head Acceleration Y Primary			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
32.7	36.1	-6.5	185.8



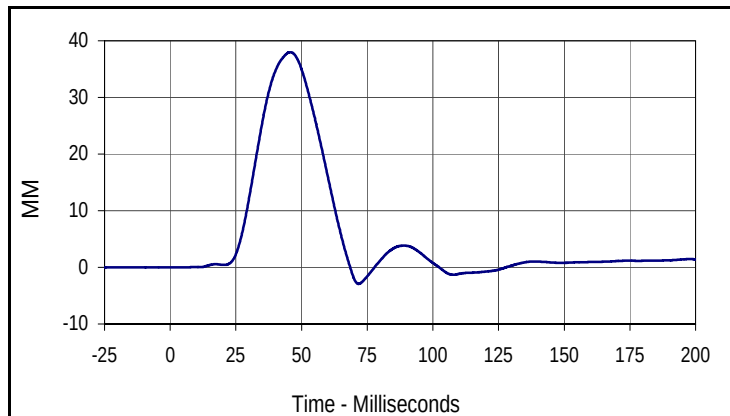
Curve Description			
Driver Head Acceleration Z Primary			
CURNO	Type	SAE Class	Units
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Max	Time	Min	Time
14.0	28.4	-14.7	48.3



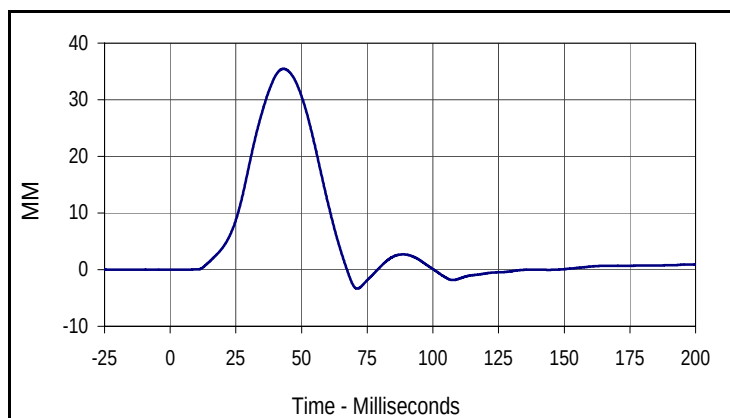
Curve Description			
Driver Head Acceleration Resultant Primary			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
35.6	36.2	0.0	1.8

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

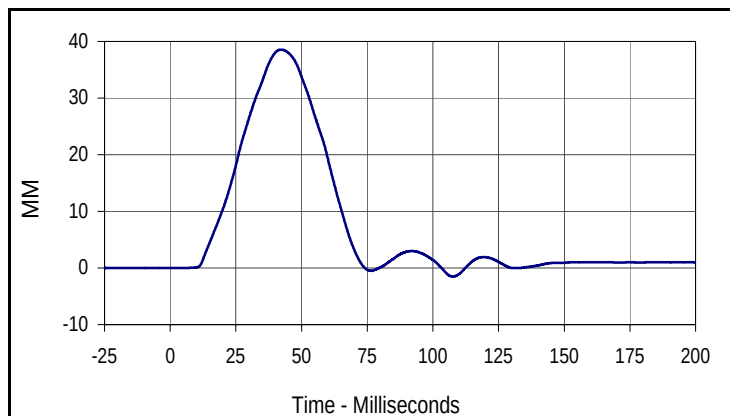
Test Date: 9/23/10
 NHTSA No.: HB5301



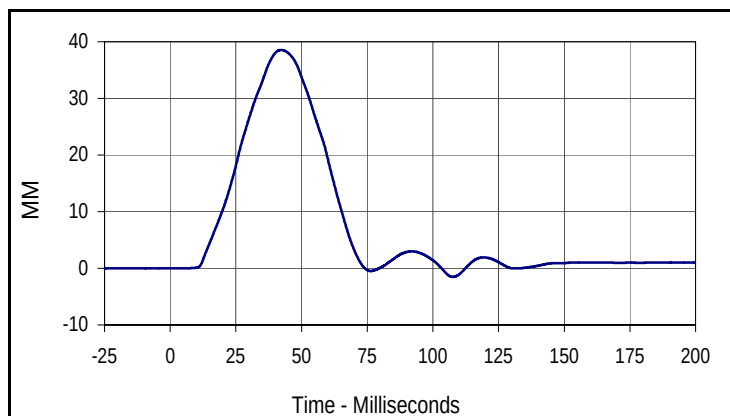
Curve Description			
Driver Upper Thorax Rib Deflection Y			
CURNO	Type	SAE Class	Units
007	FIL	180	MM
Max	Time	Min	Time
38.0	45.8	-2.9	71.7



Curve Description			
Driver Middle Thorax Rib Deflection Y			
CURNO	Type	SAE Class	Units
008	FIL	180	MM
Max	Time	Min	Time
35.5	43.2	-3.4	71.2



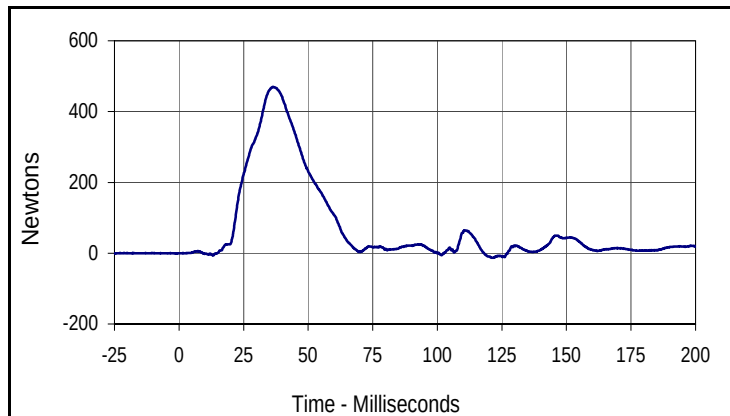
Curve Description			
Driver Lower Thorax Rib Deflection Y			
CURNO	Type	SAE Class	Units
009	FIL	180	MM
Max	Time	Min	Time
38.6	42.2	-1.5	107.5



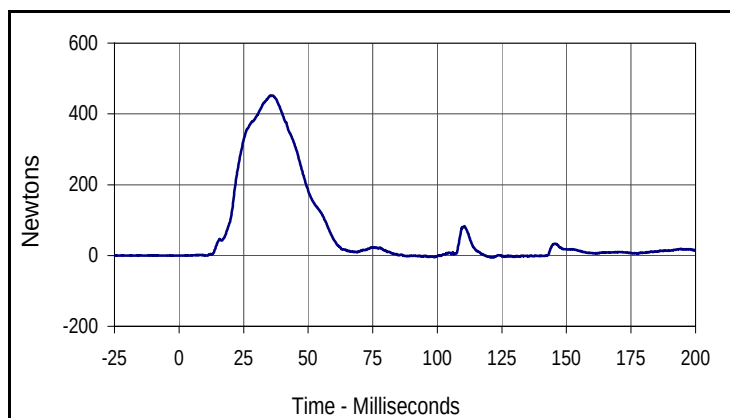
Curve Description			
Driver Thorax Rib Deflection Maximum			
CURNO	Type	SAE Class	Units
010	FIL	180	MM
Max	Time	Min	Time
38.6	42.2	-1.5	107.5

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

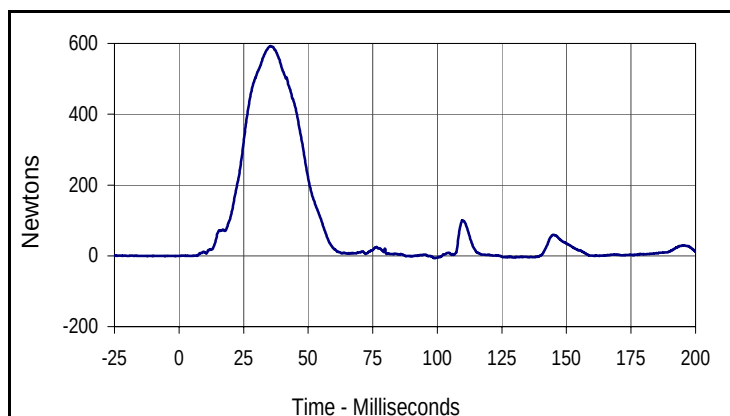
Test Date: 9/23/10
 NHTSA No.: HB5301



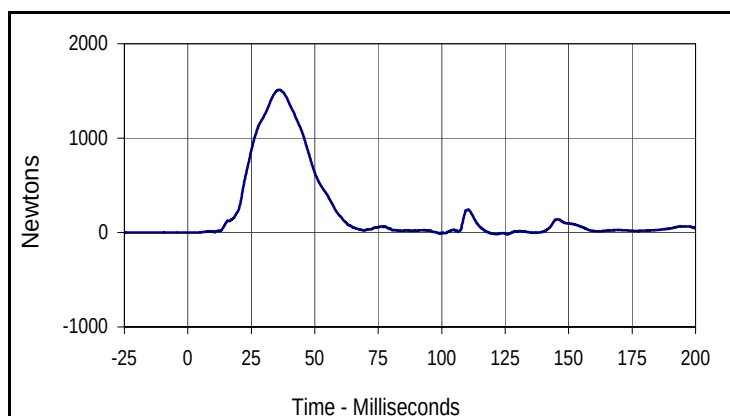
Curve Description			
Driver Anterior Abdominal Force Y			
CURNO	Type	SAE Class	Units
013	FIL	600	Newtons
Max	Time	Min	Time
469.5	36.3	-12.9	121.6



Curve Description			
Driver Middle Abdominal Force Y			
CURNO	Type	SAE Class	Units
014	FIL	600	Newtons
Max	Time	Min	Time
451.7	36.1	-5.7	121.6



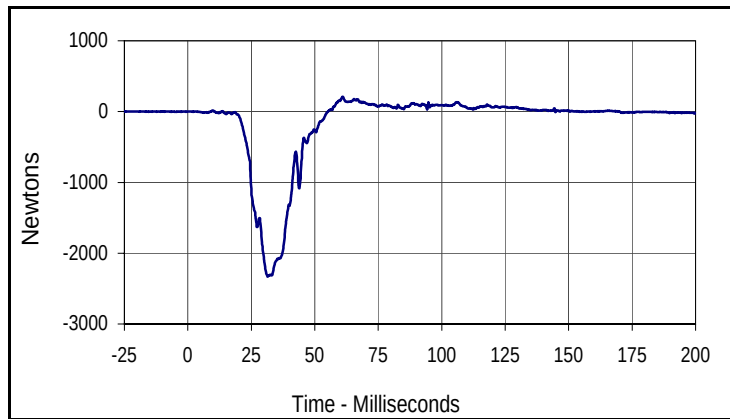
Curve Description			
Driver Posterior Abdominal Force Y			
CURNO	Type	SAE Class	Units
015	FIL	600	Newtons
Max	Time	Min	Time
593.0	35.4	-6.7	98.9



Curve Description			
Driver Total Abdominal Force			
CURNO	Type	SAE Class	Units
013	RES	600	Newtons
Max	Time	Min	Time
1511.5	36.1	-19.2	126.1

Test Vehicle: 2011 Honda CR-Z EX NAVI 3-Door Hatchback
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

Test Date: 9/23/10
 NHTSA No.: HB5301



Curve Description			
Driver Pubic Symphysis Force Y			
CURNO	Type	SAE Class	Units
016	FIL	600	Newtons
Max	Time	Min	Time
209.2	61.0	-2329.4	31.5

APPENDIX C
DUMMY CALIBRATION DATA

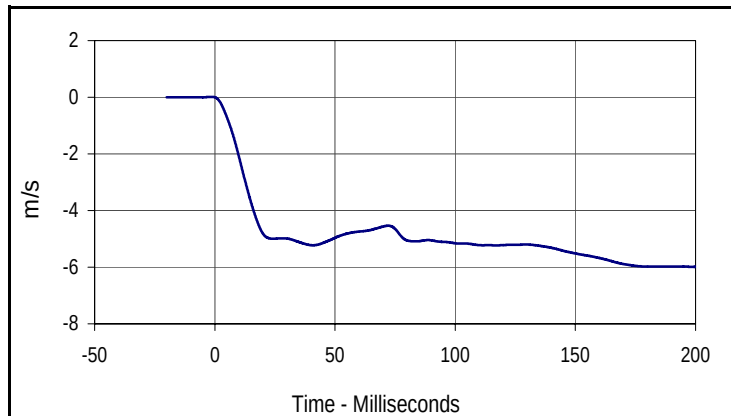
APPENDIX C
PRE-TEST / HIII CONFIGURATION AND PERFORMANCE VERIFICATION DATA

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

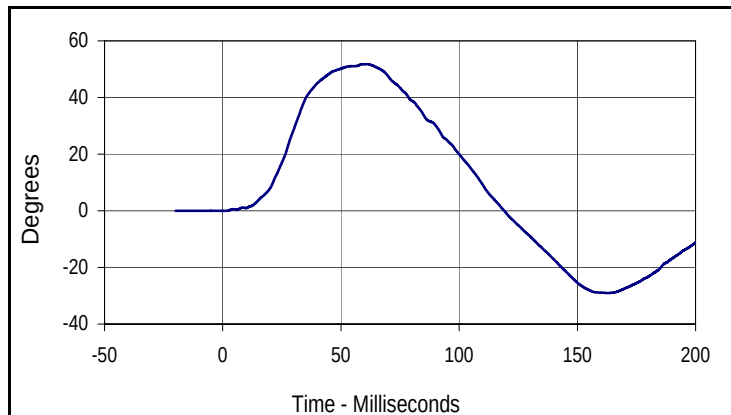
Test Date: 9/20/10
 Test I.D.: NB09D



Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	3.30 to 3.50	3.41	Pass
Pendulum Deceleration	1 msec	m/s	0.0 to -.050	-0.046	Pass
	3 msec	m/s	-.250 to -.375	-0.297	Pass
	14 msec	m/s	-3.20 to -3.70	-3.40	Pass
Headform Rotation	Max	Degrees	49.0 to 58.0	51.8	Pass
	Time	msec	54.0 to 66.0	60.8	Pass
Maximum Rotation To Time Zero Crossing		msec	53.0 to 88.0	58.3	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.3	-6.0	200.0



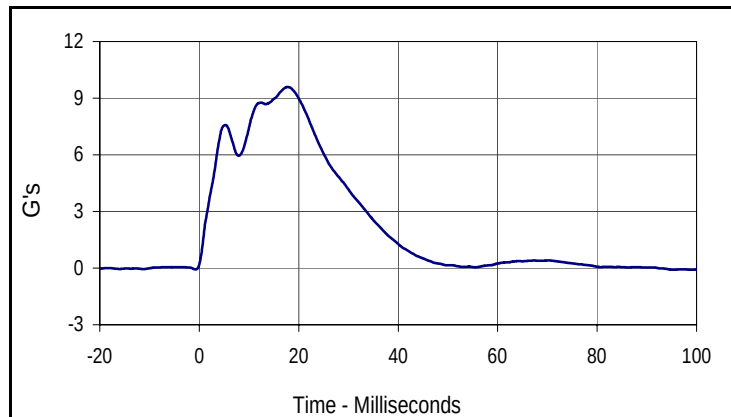
Curve Description			
Headform Rotation			
CURNO	Type	SAE Class	Units
002	FIL	180	Degrees
Max	Time	Min	Time
51.8	60.8	-29.0	162.5

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

Test Date: 9/20/10
 Test I.D.: SH09D



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.20 to 4.40	4.22	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	9.6	Pass
Overall Test Results				Pass



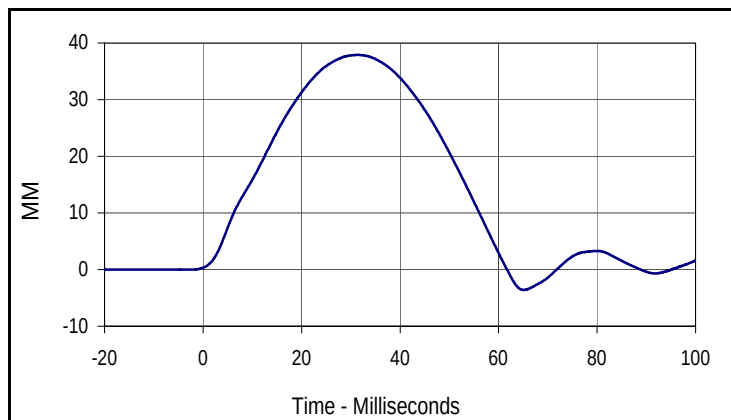
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
9.6	17.7	-0.1	98.7

Test Program: ES2re Rib Module Calibration
 ATD Serial No.: F035 Rib #1

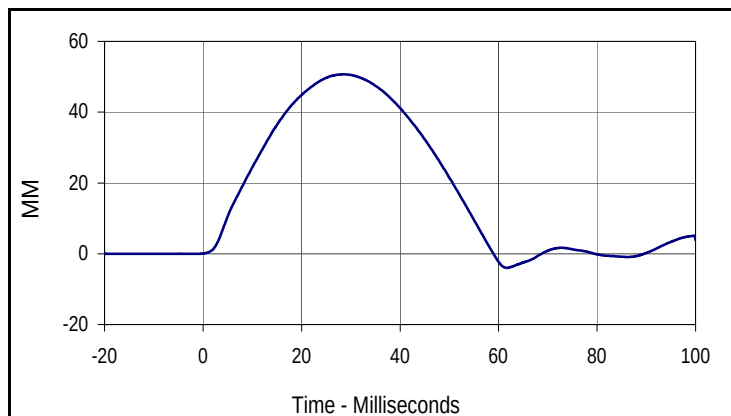
Test Date: 9/20/10
 Test I.D.: RIB09G



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Rib Deflection at 459 MM Drop Height	MM	36 to 40	37.9	Pass
Peak Rib Deflection at 815 MM Drop Height	MM	46 to 51	50.7	Pass
Overall Test Results			Pass	



Curve Description			
Upper Rib Deflection (459 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
37.9	31.4	-3.6	65.1



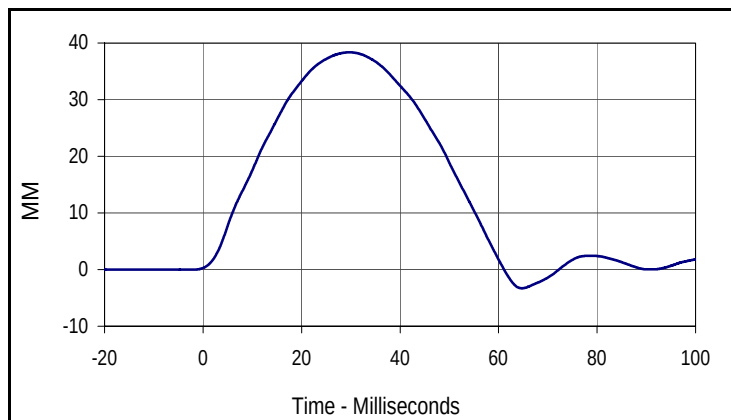
Curve Description			
Upper Rib Deflection (815 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
50.7	28.6	-4.0	61.7

Test Program: ES2re Rib Module Calibration
 ATD Serial No.: F035 Rib #2

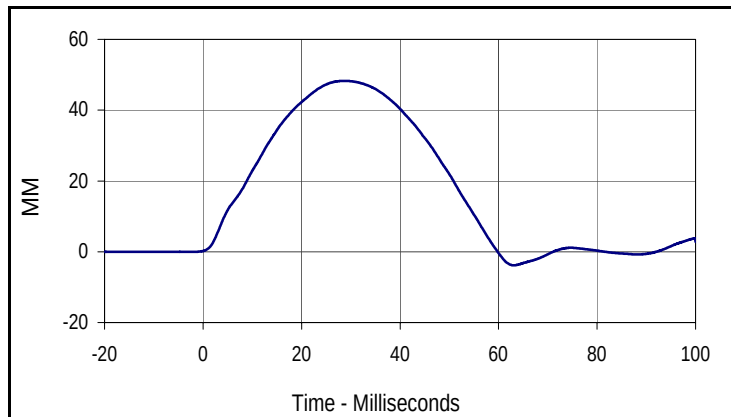
Test Date: 9/20/10
 Test I.D.: RIB09H



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Rib Deflection at 459 MM Drop Height	MM	36 to 40	38.4	Pass
Peak Rib Deflection at 815 MM Drop Height	MM	46 to 51	48.3	Pass
Overall Test Results			Pass	



Curve Description			
Middle Rib Deflection (459 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
38.4	29.7	-3.3	64.7



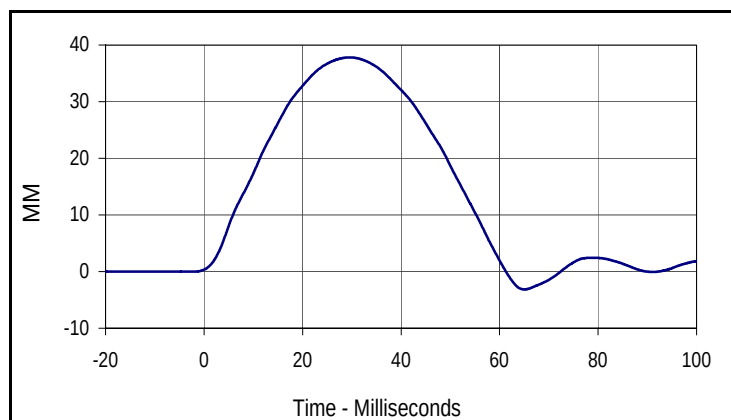
Curve Description			
Middle Rib Deflection (815 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
48.3	28.7	-3.8	63.1

Test Program: ES2re Rib Module Calibration
 ATD Serial No.: F035 Rib #3

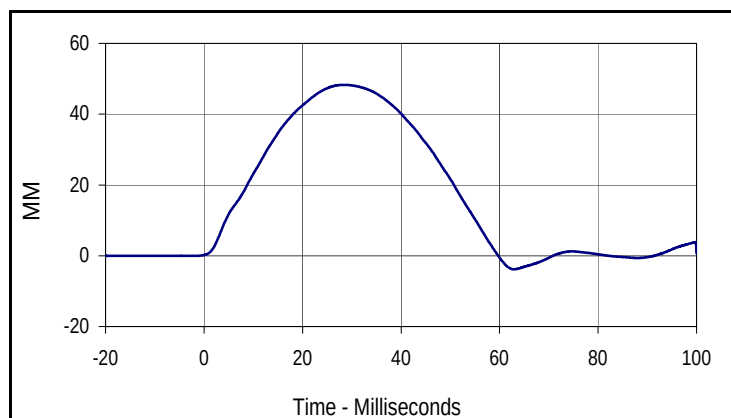
Test Date: 9/20/10
 Test I.D.: RIB09I



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Rib Deflection at 459 MM Drop Height	MM	36 to 40	37.8	Pass
Peak Rib Deflection at 815 MM Drop Height	MM	46 to 51	48.3	Pass
Overall Test Results			Pass	



Curve Description			
Lower Rib Deflection (459 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
37.8	29.6	-3.2	65.0



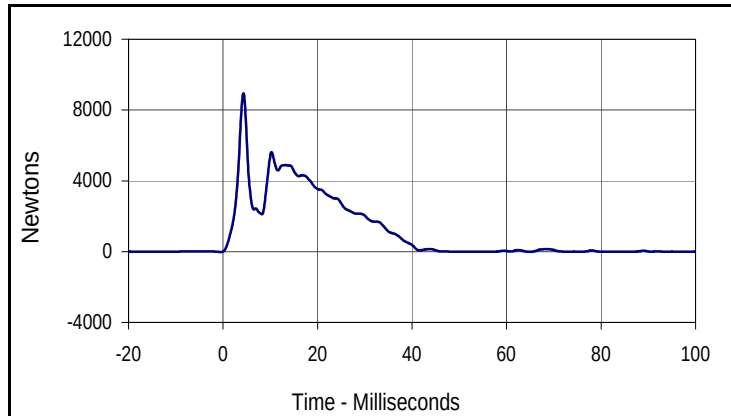
Curve Description			
Lower Rib Deflection (815 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
48.3	28.4	-3.8	63.0

Test Program: ES2re Thorax Calibration
 ATD Serial No.: F035

Test Date: 9/20/10
 Test I.D.: TH09D



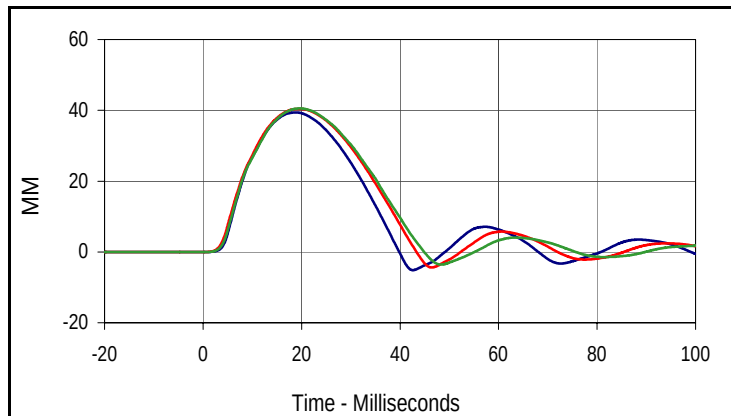
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	5.40 to 5.60	5.45	Pass
Impactor Force	N	5100 to 6200	5618.8	Pass
	msec	> 6.0 msec	9.9	Pass
Upper Rib Deflection	MM	34 to 41	39.4	Pass
Middle Rib Deflection	MM	37 to 45	40.4	Pass
Lower Rib Deflection	MM	37 to 44	40.5	Pass
Overall Test Results			Pass	



Curve Description

Impactor Force

CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
8952.9	4.3	-26.5	-0.4



Curve Description

Upper, Middle, Lower Rib Deflections

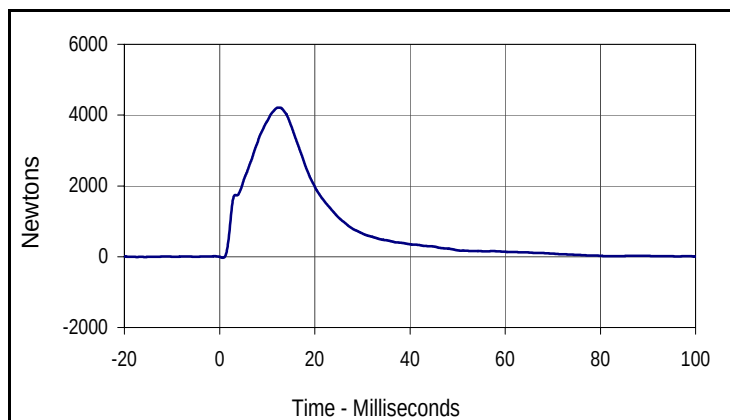
CURNO(s)	Type	SAE Class	Units
002-003-004	FIL	180	MM
Max (Upper)	Time	Min (Upper)	Time
39.4	18.8	-5.1	42.6
Max (Middle)	Time	Min (Middle)	Time
40.4	19.5	-4.4	46.5
Max (Lower)	Time	Min (Lower)	Time
40.5	19.6	-3.6	48.3

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

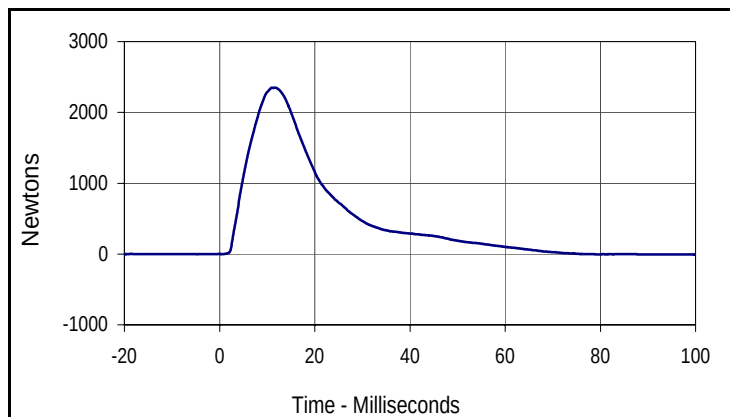
Test Date: 9/20/10
 Test I.D.: ABD09D



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	3.90 to 4.10	3.93	Pass
Impactor Force	N	4000 to 4800	4207.7	Pass
	msec	10.6 to 13.0	12.7	Pass
Abdominal Force	N	2200 to 2700	2349.6	Pass
	msec	10.0 to 12.3	11.7	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
4207.7	12.7	-27.9	0.7



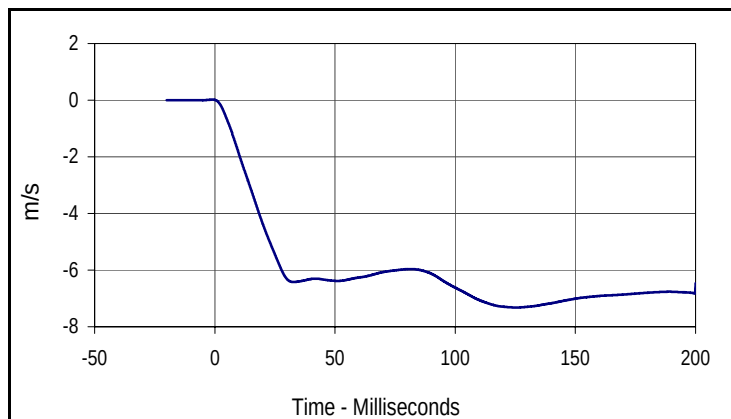
Curve Description			
Abdomen Sum Resultant			
CURNO	Type	SAE Class	Units
002	RES	600	Newtons
Max	Time	Min	Time
2349.6	11.7	-8.1	99.7

Test Program: ES2re Lumbar Spine Calibration
 ATD Serial No.: F035

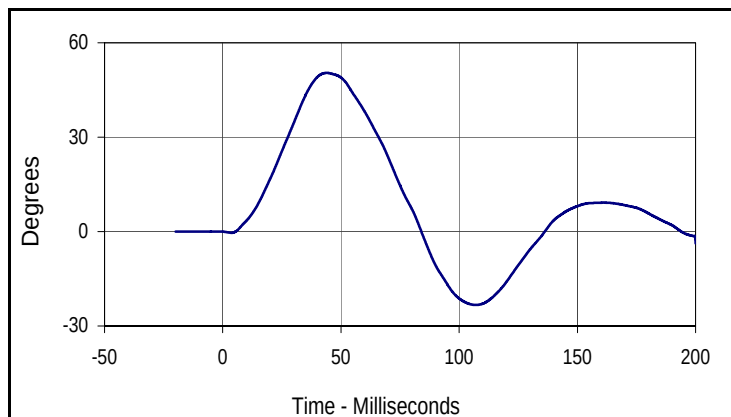
Test Date: 9/20/10
 Test I.D.: SP09D



Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.95 to 6.15	5.98	Pass
Pendulum Deceleration	1 msec	m/s	0.0 to -.050	-0.029	Pass
	3.7 msec	m/s	-.240 to -.425	-0.400	Pass
	27 msec	m/s	-5.80 to -6.50	-5.85	Pass
	30 msec	m/s	< -6.50	-6.32	Pass
Headform Rotation	Max	Degrees	45.0 to 55.0	50.4	Pass
	Time	msec	39.0 to 53.0	44.0	Pass
Maximum Rotation To Time Zero Crossing		msec	37.0 to 57.0	40.1	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.0	-7.3	125.4



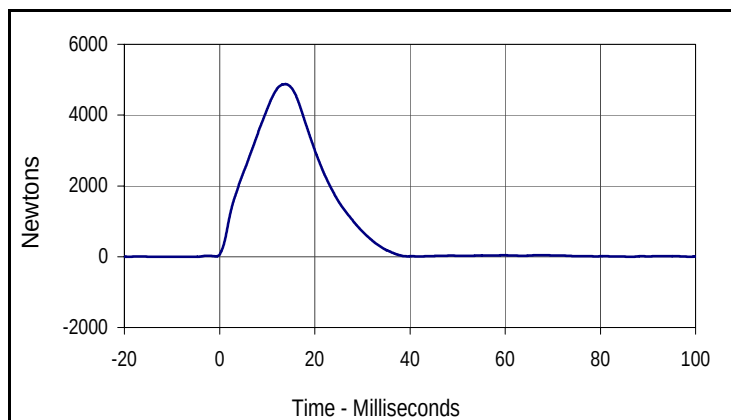
Curve Description			
Headform Rotation			
CURNO	Type	SAE Class	Units
002	FIL	180	Degrees
Max	Time	Min	Time
50.4	44.0	-23.3	107.0

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

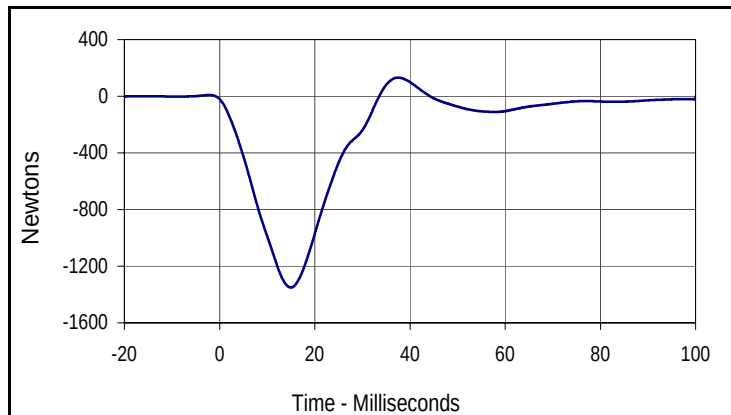
Test Date: 9/20/10
 Test I.D.: PL09D



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.20 to 4.40	4.31	Pass
Impactor Force	N	4700 to 5400	4875.1	Pass
	msec	11.8 to 16.1	13.8	Pass
Pubic Symphysis Load	N	-1230 to -1590	-1350.3	Pass
	msec	12.2 to 17.0	15	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
4875.1	13.8	-4.1	-20.0



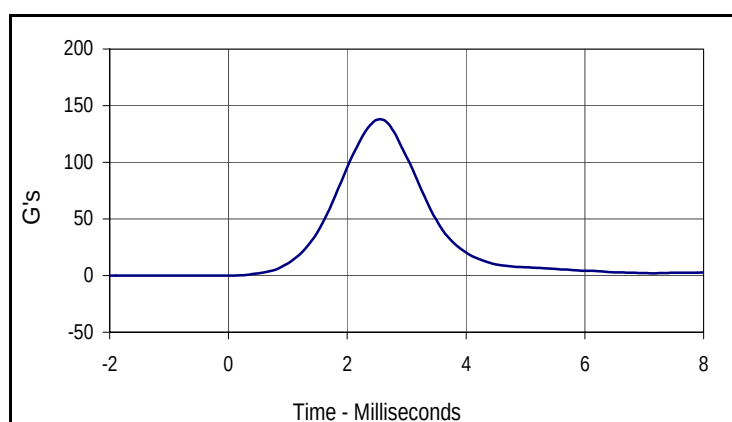
Curve Description			
Pubic FY			
CURNO	Type	SAE Class	Units
002	FIL	60	Newtons
Max	Time	Min	Time
131.5	37.5	-1350.3	15.0

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

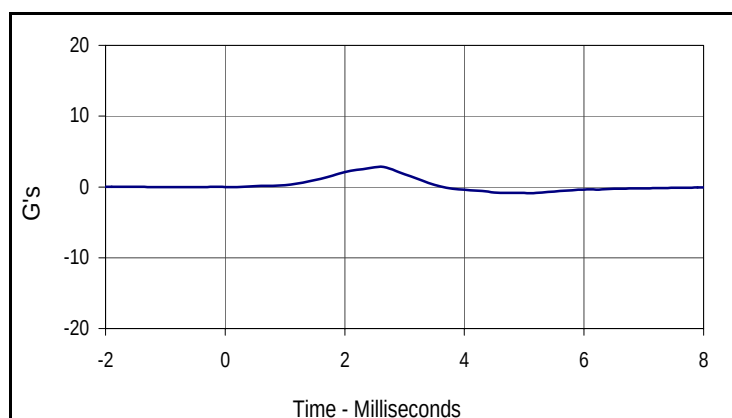
Test Date: 9/20/10
 Test I.D.: HD09D



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	125 to 155	137.7	Pass
Peak Longitudinal Acceleration	G's	≤15	2.9	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	5.3	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
137.7	2.6	0.0	-0.2



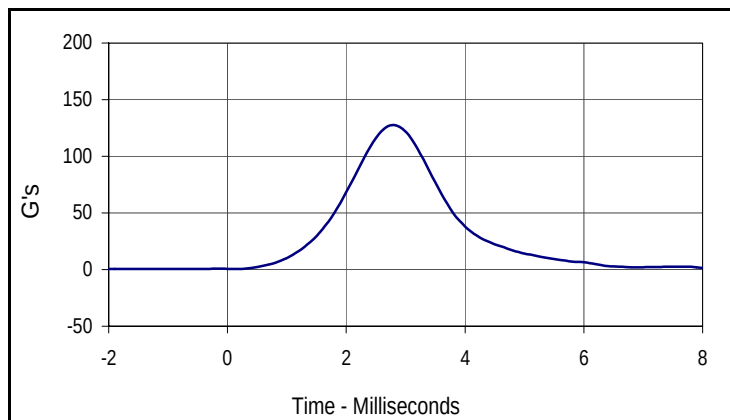
Curve Description			
Head X			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
2.9	2.6	-0.9	5.1

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

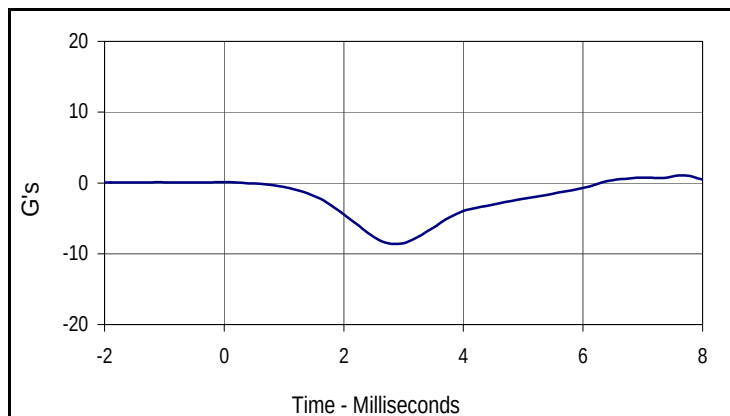
Test Date: 9/20/10
 Test I.D.: HDF09D



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	115 to 137	127.7	Pass
Peak Longitudinal Acceleration	G's	≤15	8.6	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	11.1	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
127.7	2.8	0.6	0.2



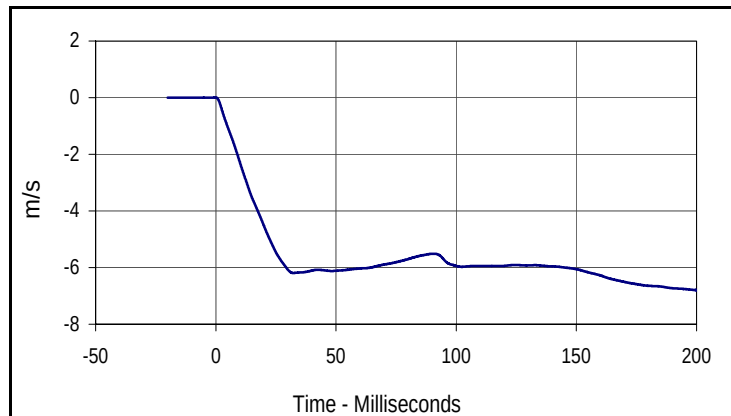
Curve Description			
Head X			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.1	0.0	-8.6	2.9

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

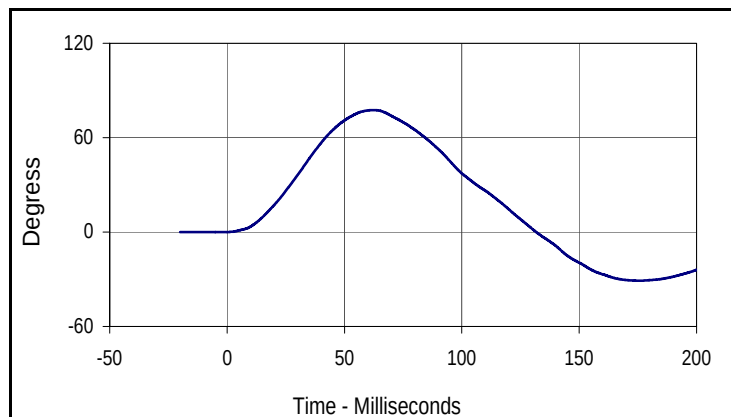
Test Date: 9/20/10
 Test I.D.: NBF09D



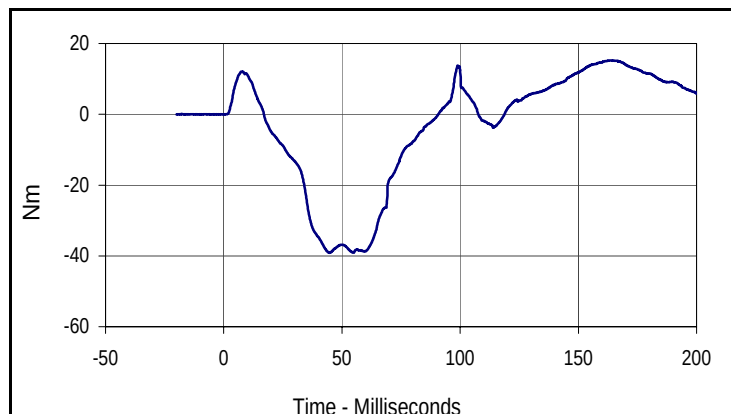
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.51 to 5.63	5.51	Pass
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.3	Pass
	15 msec	m/s	-3.30 to -4.10	-3.5	Pass
	20 msec	m/s	-4.40 to -5.40	-4.5	Pass
	25 msec	m/s	-5.40 to -6.10	-5.5	Pass
	25-100 msec	m/s	-5.50 to -6.20	-6.2	Pass
Translation-Rotation	Max	Degrees	71.0 to 81.0	77.5	Pass
	Time	msec	50.0 to 70.0	62.4	Pass
Peak Occipital Condyle Moment		Nm	-36.0 to -44.0	-39.1	Pass
Decaying Moment Time to Cross 0 Nm		msec	102.0 to 126.0	118.8	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.2	-6.8	200.0



Curve Description			
Maximum Translation Rotation			
CURNO	Type	SAE Class	Units
002	FIL	60	Degress
Max	Time	Min	Time
77.5	62.4	-30.9	175.1



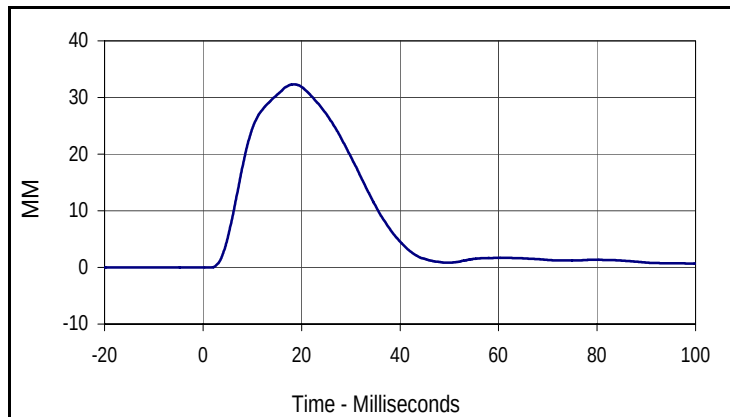
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
15.2	163.0	-39.1	44.6

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

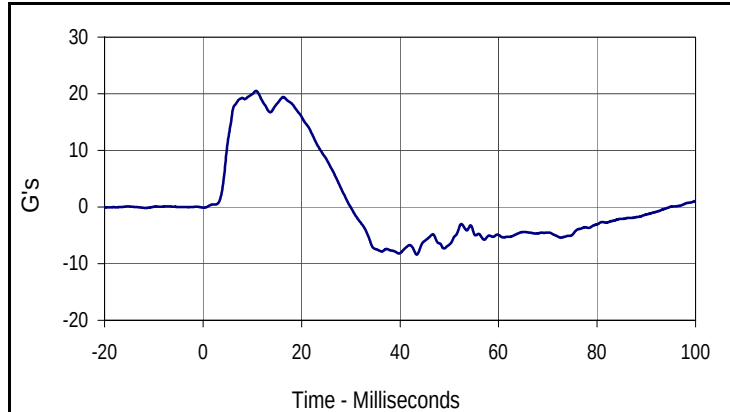
Test Date: 9/20/10
 Test I.D.: SHF09D



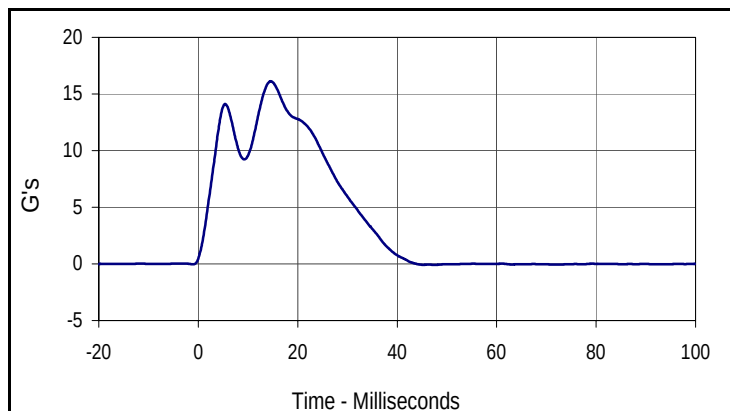
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.27	Pass
Shoulder Deflection	MM	28 to 37	32.3	Pass
Peak Upper Spine Y Acceleration	G's	17 to 22	20.5	Pass
Peak Impactor Acceleration	G's	13 to 18	16.1	Pass
Overall Test Results			Pass	



Curve Description			
Shoulder Acceleration			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
32.3	18.5	0.0	-14.7



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
20.5	10.8	-8.4	43.4



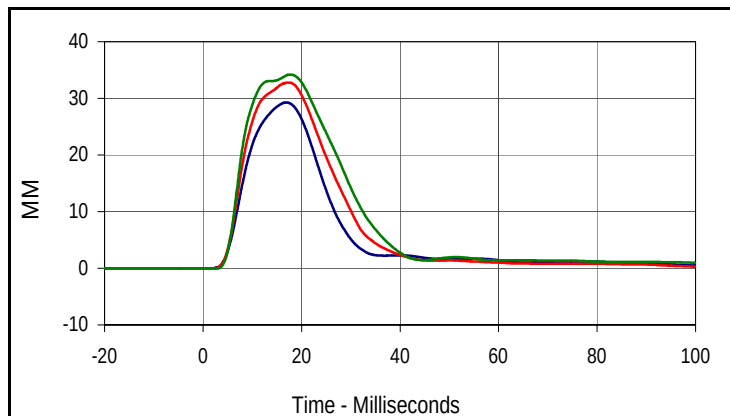
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
16.1	14.6	-0.1	47.6

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

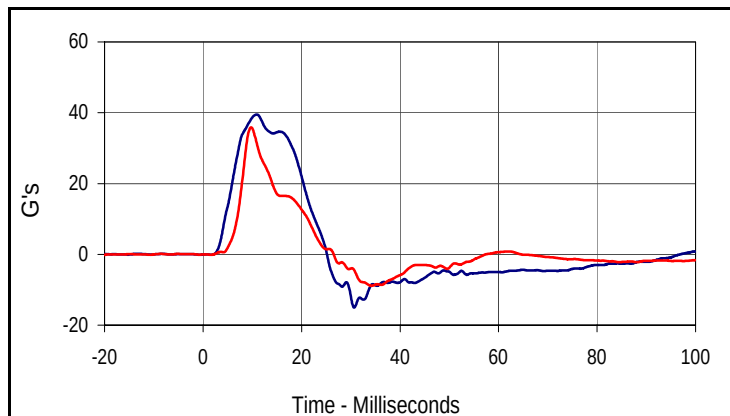
Test Date: 9/20/10
 Test I.D.: THF09D



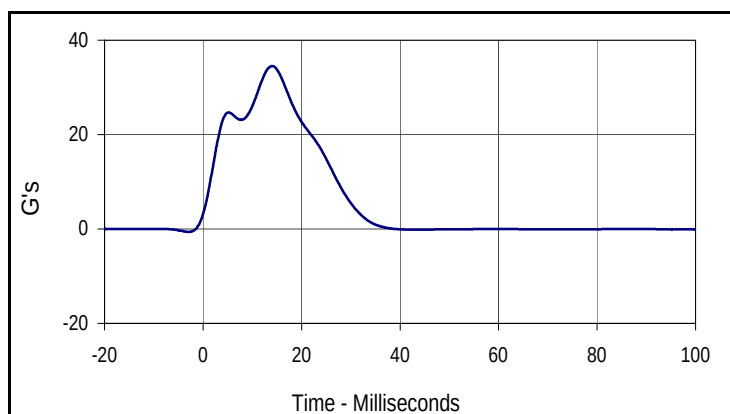
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	6.60 to 6.80	6.63	Pass
Shoulder Deflection	MM	31 to 40	38.7	Pass
Upper Thorax Rib Deflection	MM	25 to 32	29.3	Pass
Middle Thorax Rib Deflection	MM	30 to 36	32.8	Pass
Lower Thorax Rib Deflection	MM	32 to 38	34.2	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	39.5	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	35.9	Pass
Peak Impactor Acceleration After 5 msec.	G's	30 to 36	34.5	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
29.3	16.9	0.0	-5.8
Middle Thorax Deflection			
Max	Time	Min	Time
32.8	17.4	0.0	2.2
Lower Thorax Deflection			
Max	Time	Min	Time
34.2	17.7	0.0	2.7



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
39.5	10.9	-15.1	30.7
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
35.9	9.7	-8.9	34.2



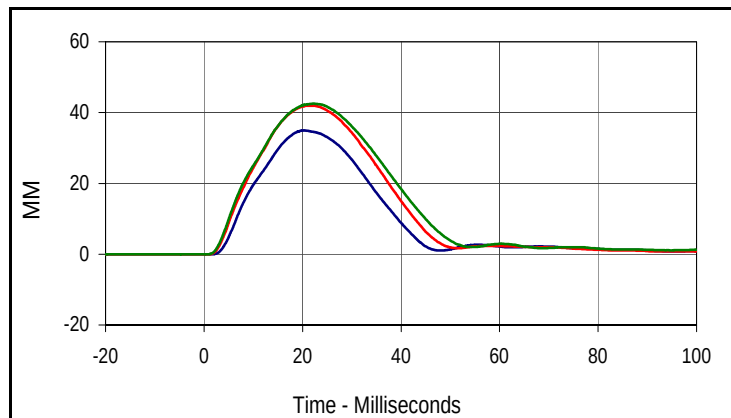
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
34.5	14.0	-0.6	-2.9

Test Program: SID IIs Thorax w/o Arm Calibration
 ATD Serial No.: 307

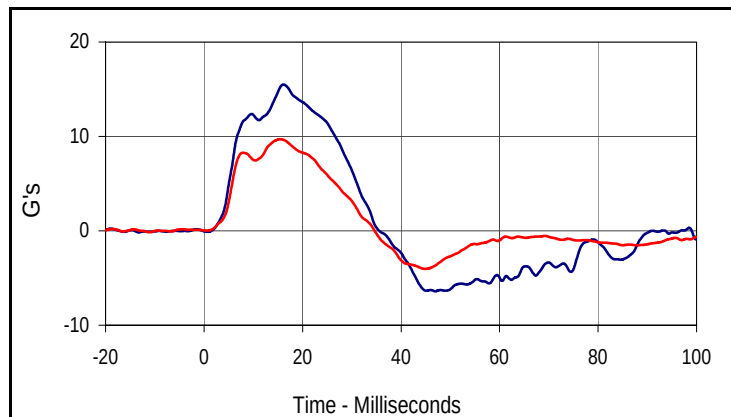
Test Date: 9/20/10
 Test I.D.: TOA09D



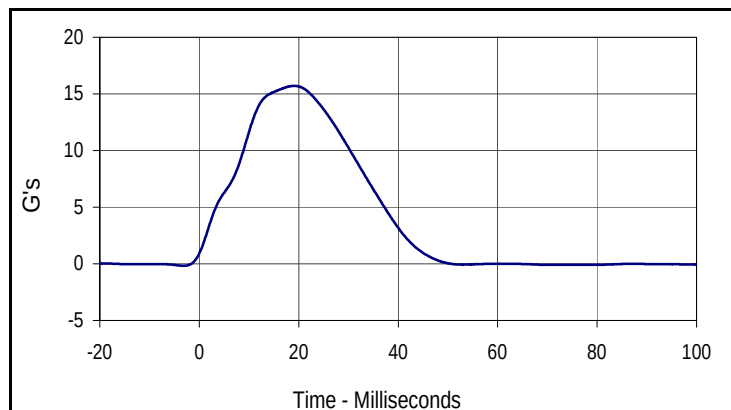
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.27	Pass
Upper Thorax Rib Deflection	MM	32 to 40	34.9	Pass
Middle Thorax Rib Deflection	MM	39 to 45	42.0	Pass
Lower Thorax Rib Deflection	MM	35 to 43	42.5	Pass
Peak Upper Spine Y Acceleration	G's	13 to 17	15.5	Pass
Peak Lower Spine Y Acceleration	G's	7 to 11	9.7	Pass
Peak Impactor Acceleration	G's	14 to 18	15.7	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
34.9	20.3	0.0	-10.1
Middle Thorax Deflection			
Max	Time	Min	Time
42.0	21.6	0.0	-14.5
Lower Thorax Deflection			
Max	Time	Min	Time
42.5	22.2	0.0	0.8



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.5	16.1	-6.4	47.0
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
9.7	15.4	-4.0	44.8



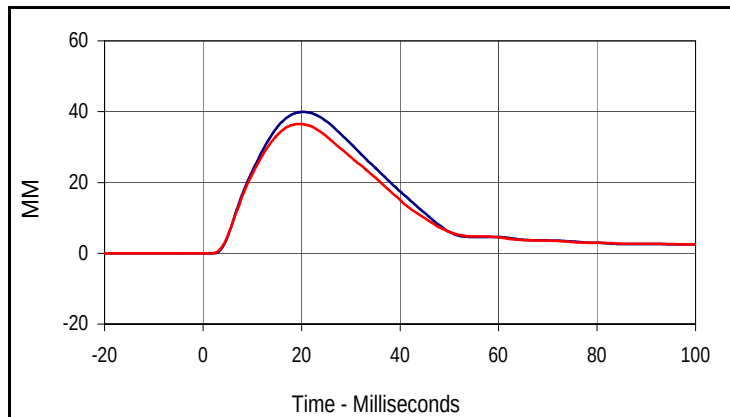
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
006	FIL	60	G's
Max	Time	Min	Time
15.7	19.1	-0.2	-3.2

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

Test Date: 9/20/10
 Test I.D.: ABD09D

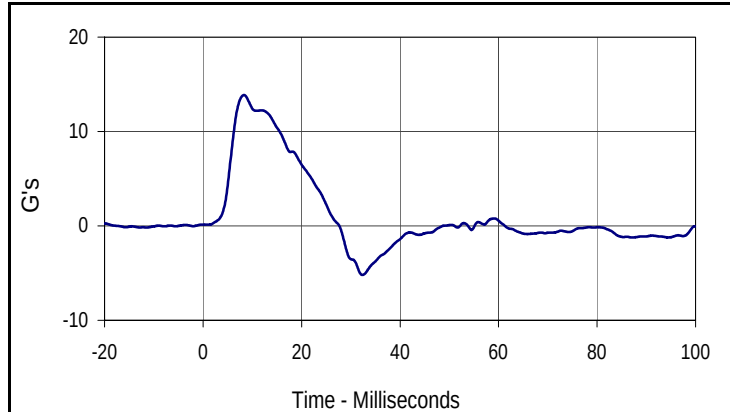


Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.31	Pass
Upper Abdominal Rib Deflection	MM	36 to 47	39.9	Pass
Lower Abdominal Rib Deflection	MM	33 to 44	36.5	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	13.9	Pass
Peak Impactor Acceleration	G's	12 to 16	15.1	Pass
Overall Test Results			Pass	

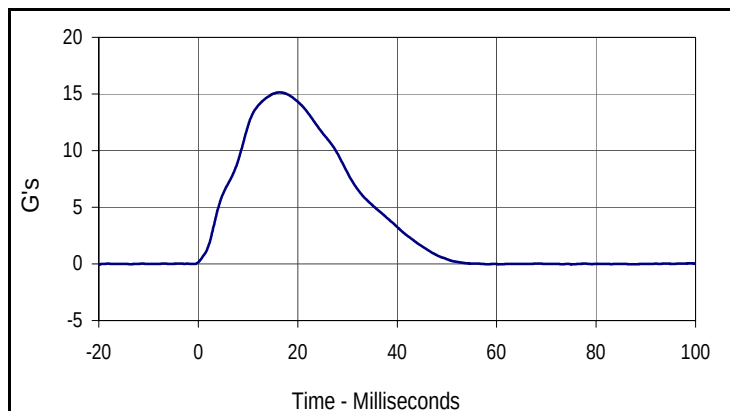


Curve Description			
Upper Abdominal Rib Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
39.9	20.2	0.0	-2.7

Curve Description			
Lower Abdominal Rib Deflection			
CURNO	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
36.5	19.5	0.0	-2.3



Curve Description			
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
13.9	8.3	-5.2	32.4



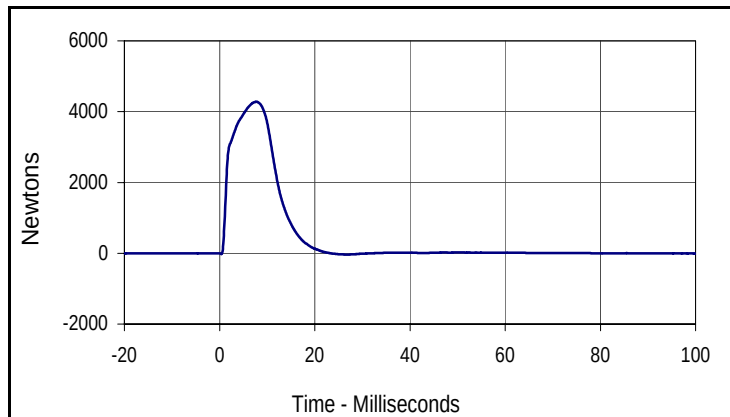
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.1	16.3	0.0	-20.0

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

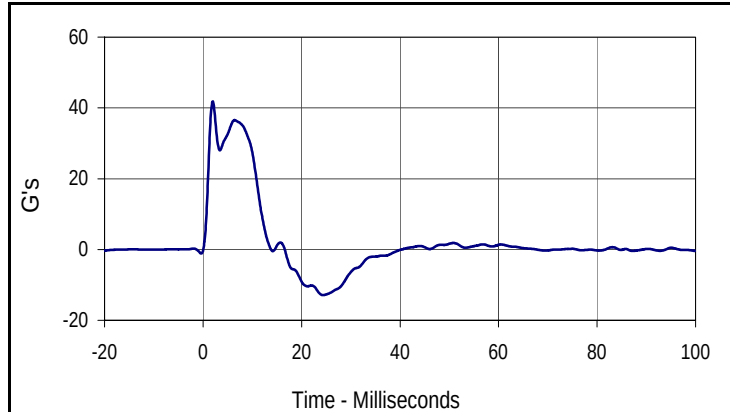
Test Date: 9/20/10
 Test I.D.: PA09D



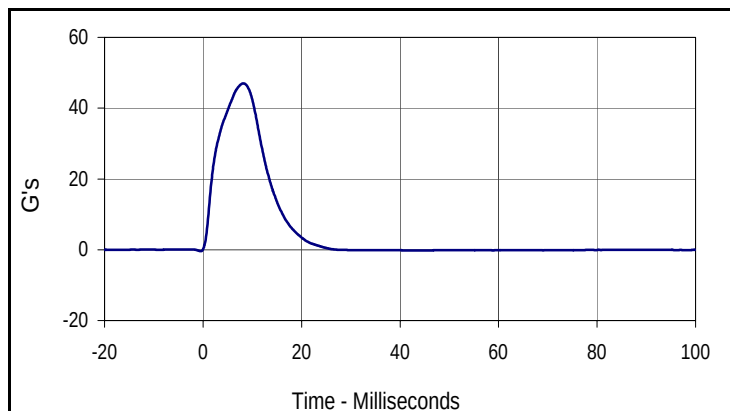
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	6.60 to 6.80	6.74	Pass
Peak Acetabulum Force	Newtons	3600 to 4300	4278.5	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	36.6	Pass
Peak Impactor Acceleration	G's	38 to 47	47.0	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Acetabulum Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4278.5	7.7	-38.2	27.0



Curve Description			
Pelvis Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
41.8	2.0	-12.9	24.3



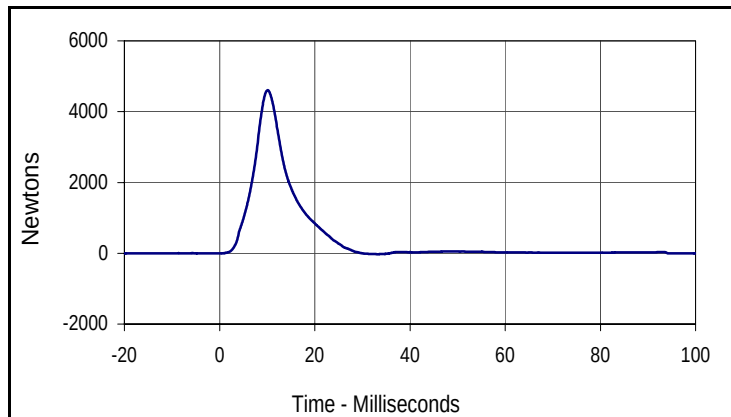
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
47.0	8.2	-0.4	-0.5

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

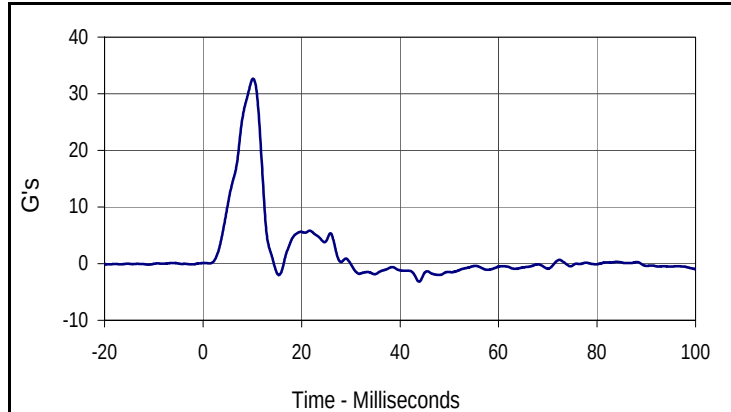
Test Date: 9/20/10
 Test I.D.: PLF09D



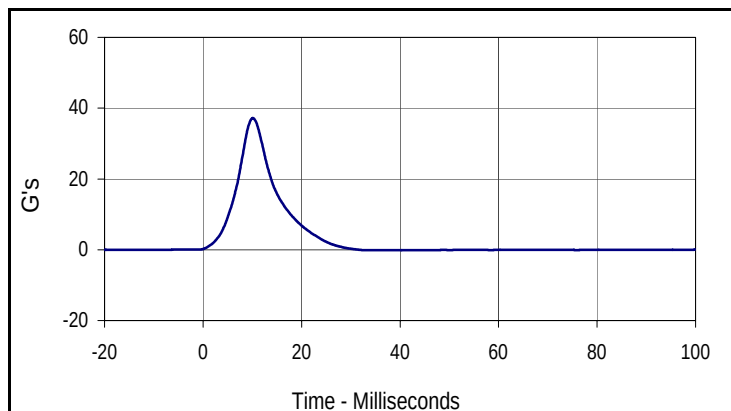
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.30	Pass
Peak Iliac Force	Newtons	4100 to 5100	4607.9	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	32.7	Pass
Peak Impactor Acceleration	G's	36 to 45	37.2	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Iliac Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4607.9	10.1	-26.7	33.3



Curve Description			
Pelvis Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
32.7	10.2	-3.2	43.9



Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
37.2	10.1	-0.2	36.8

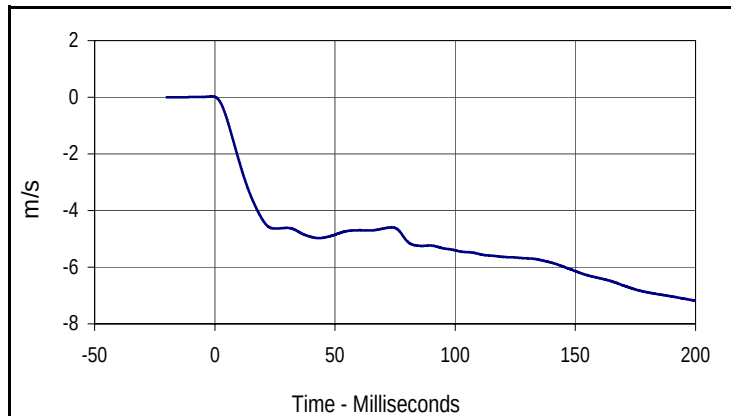
APPENDIX C
POST-TEST / HIII CONFIGURATION AND PERFORMANCE VERIFICATION DATA

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

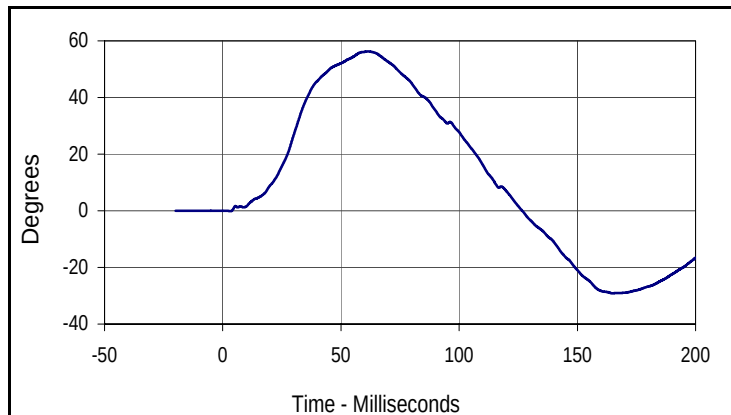
Test Date: 9/27/10
 Test I.D.: NB09E



Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	3.30 to 3.50	3.43	Pass
Pendulum Deceleration	1 msec	m/s	0.0 to -.050	-0.034	Pass
	3 msec	m/s	-.250 to -.375	-0.295	Pass
	14 msec	m/s	-3.20 to -3.70	-3.28	Pass
Headform Rotation	Max	Degrees	49.0 to 58.0	56.3	Pass
	Time	msec	54.0 to 66.0	61.5	Pass
Maximum Rotation To Time Zero Crossing		msec	53.0 to 88.0	65.2	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.2	-7.2	200.0



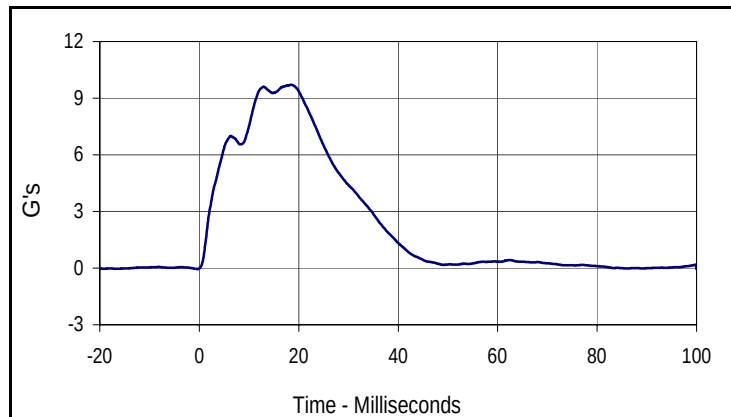
Curve Description			
Headform Rotation			
CURNO	Type	SAE Class	Units
002	FIL	180	Degrees
Max	Time	Min	Time
56.3	61.5	-29.1	164.8

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

Test Date: 9/27/10
 Test I.D.: SH09E



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.20 to 4.40	4.23	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	9.7	Pass
Overall Test Results			Pass	



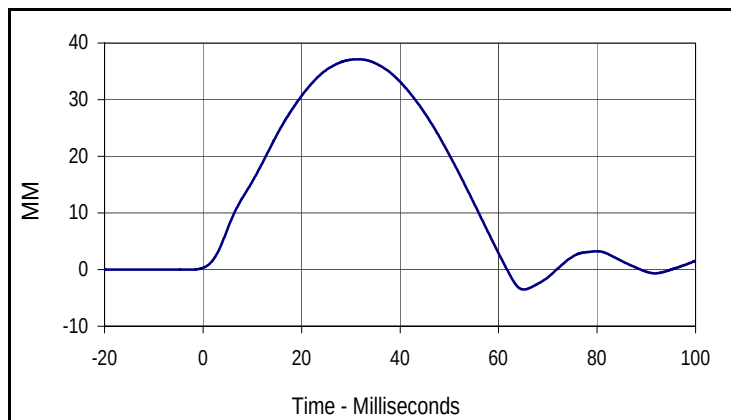
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
9.7	18.5	-0.1	-0.4

Test Program: ES2re Rib Module Calibration
 ATD Serial No.: F035 Rib #1

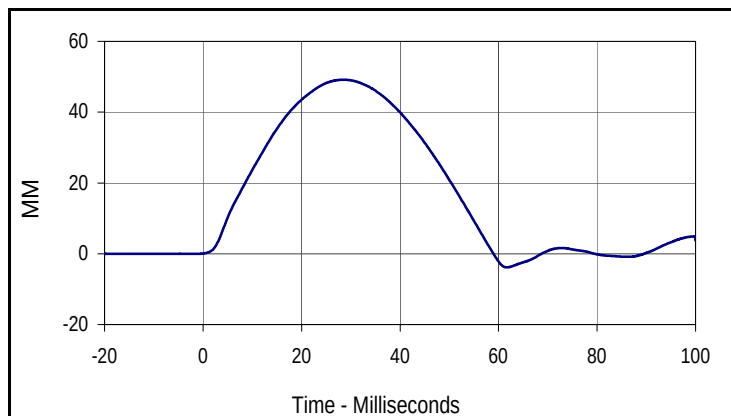
Test Date: 9/27/10
 Test I.D.: RIB09J



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Rib Deflection at 459 MM Drop Height	MM	36 to 40	37.1	Pass
Peak Rib Deflection at 815 MM Drop Height	MM	46 to 51	49.1	Pass
Overall Test Results			Pass	



Curve Description			
Upper Rib Deflection (459 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
37.1	31.4	-3.5	65.1



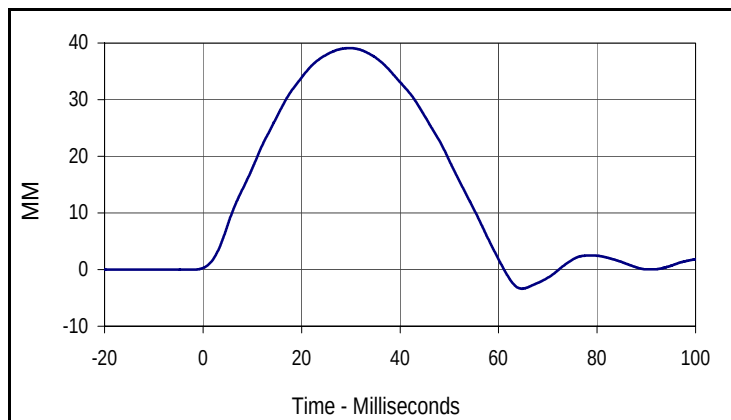
Curve Description			
Upper Rib Deflection (815 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
49.1	28.6	-3.9	61.7

Test Program: ES2re Rib Module Calibration
 ATD Serial No.: F035 Rib #2

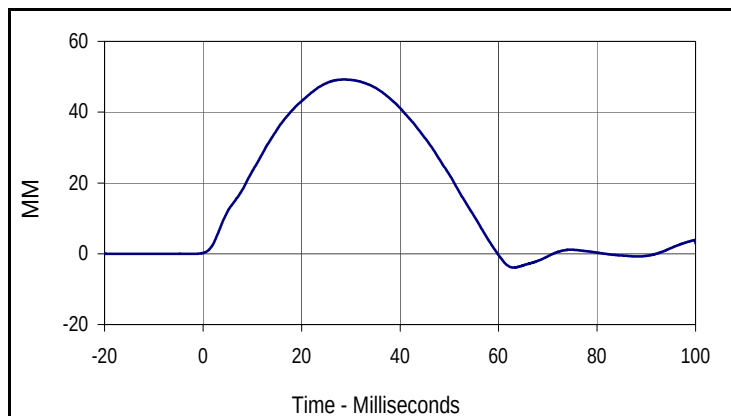
Test Date: 9/27/10
 Test I.D.: RIB09K



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Rib Deflection at 459 MM Drop Height	MM	36 to 40	39.1	Pass
Peak Rib Deflection at 815 MM Drop Height	MM	46 to 51	49.2	Pass
Overall Test Results			Pass	



Curve Description			
Middle Rib Deflection (459 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
39.1	29.7	-3.4	64.7



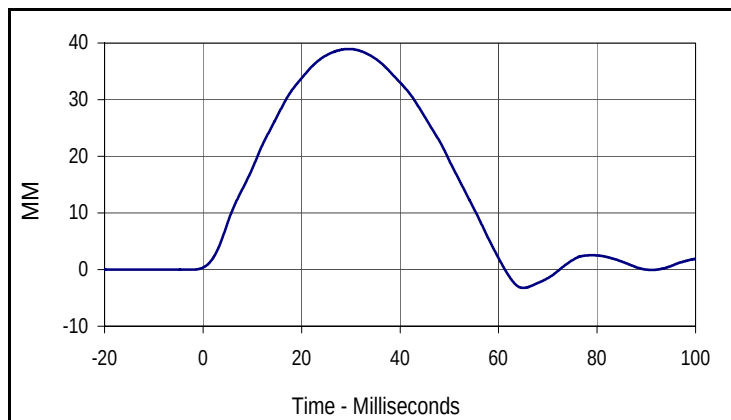
Curve Description			
Middle Rib Deflection (815 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
49.2	28.7	-3.9	63.1

Test Program: ES2re Rib Module Calibration
 ATD Serial No.: F035 Rib #3

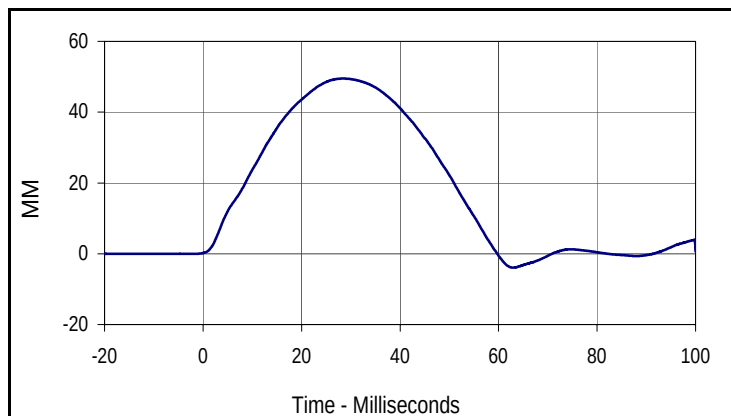
Test Date: 9/27/10
 Test I.D.: RIB09L



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Rib Deflection at 459 MM Drop Height	MM	36 to 40	39.0	Pass
Peak Rib Deflection at 815 MM Drop Height	MM	46 to 51	49.5	Pass
Overall Test Results			Pass	



Curve Description			
Lower Rib Deflection (459 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
39.0	29.6	-3.2	65.0



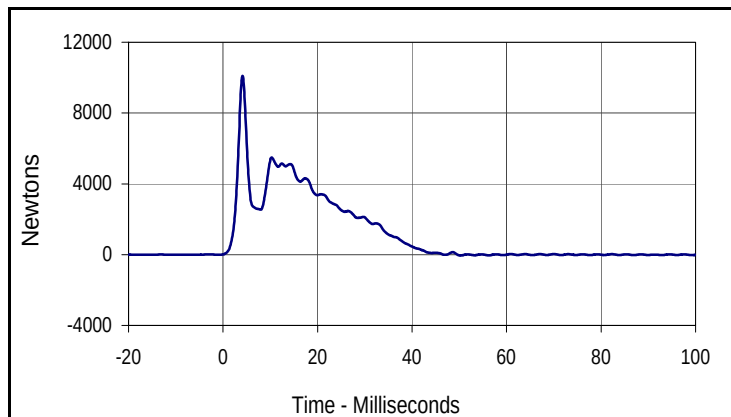
Curve Description			
Lower Rib Deflection (815 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
49.5	28.4	-3.9	63.0

Test Program: ES2re Thorax Calibration
 ATD Serial No.: F035

Test Date: 9/27/10
 Test I.D.: TH09E



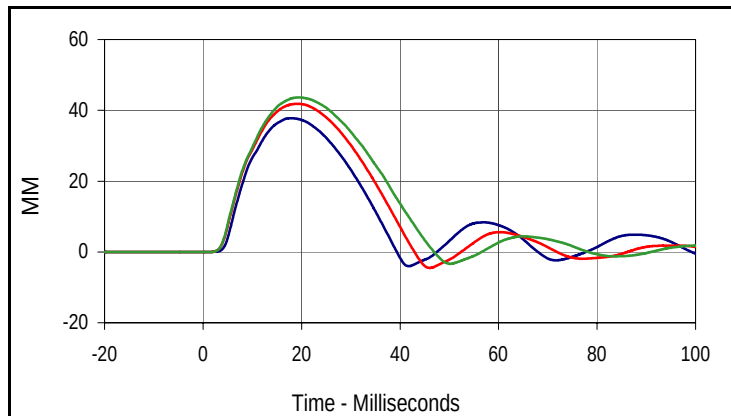
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	5.40 to 5.60	5.46	Pass
Impactor Force	N	5100 to 6200	5492.0	Pass
	msec	> 6.0 msec	9.9	Pass
Upper Rib Deflection	MM	34 to 41	37.8	Pass
Middle Rib Deflection	MM	37 to 45	41.8	Pass
Lower Rib Deflection	MM	37 to 44	43.6	Pass
Overall Test Results				Pass



Curve Description

Impactor Force

CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
10104.4	4.1	-49.8	50.2



Curve Description

Upper, Middle, Lower Rib Deflections

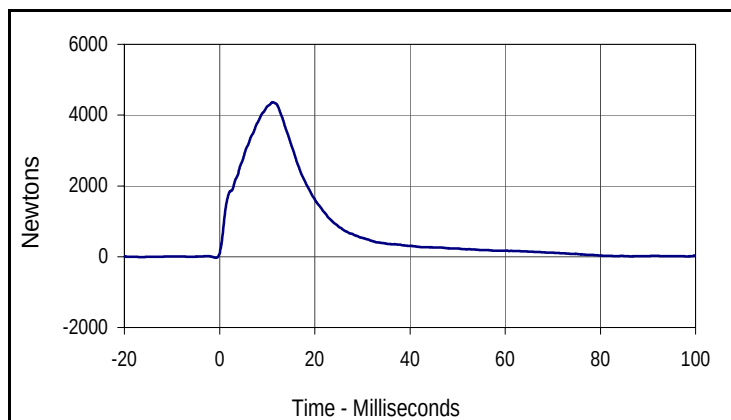
CURNO(s)	Type	SAE Class	Units
002-003-004	FIL	180	MM
Max (Upper)	Time	Min (Upper)	Time
37.8	17.8	-4.0	41.8
Max (Middle)	Time	Min (Middle)	Time
41.8	19.2	-4.5	46.0
Max (Lower)	Time	Min (Lower)	Time
43.6	19.3	-3.3	50.2

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

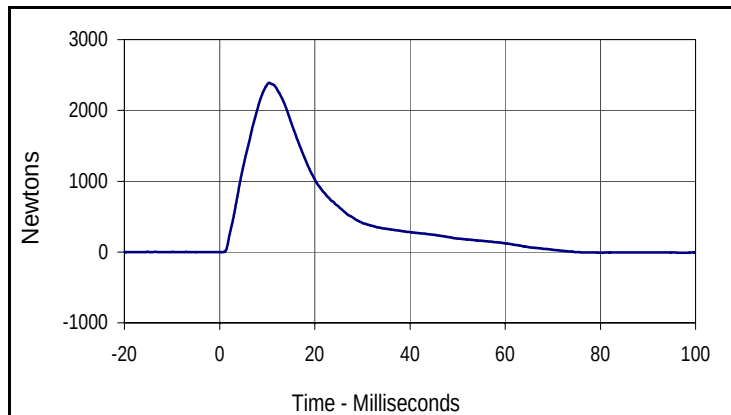
Test Date: 9/27/10
 Test I.D.: ABD09E



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	3.90 to 4.10	3.95	Pass
Impactor Force	N	4000 to 4800	4367.2	Pass
	msec	10.6 to 13.0	11.2	Pass
Abdominal Force	N	2200 to 2700	2392.0	Pass
	msec	10.0 to 12.3	10.4	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
4367.2	11.2	-31.1	-0.8



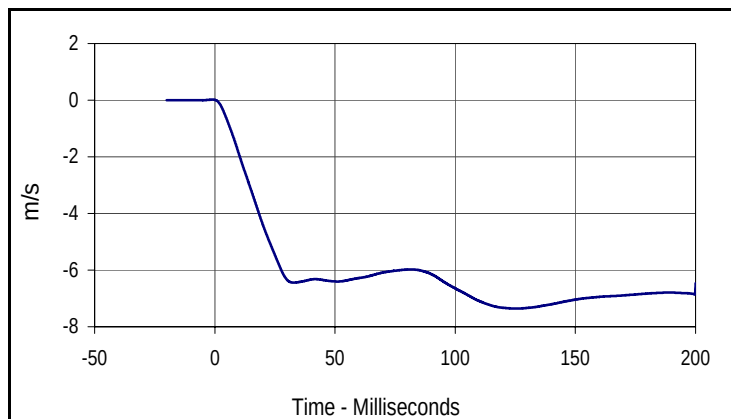
Curve Description			
Abdomen Sum Resultant			
CURNO	Type	SAE Class	Units
002	RES	600	Newtons
Max	Time	Min	Time
2392.0	10.4	-9.1	80.5

Test Program: ES2re Lumbar Spine Calibration
 ATD Serial No.: F035

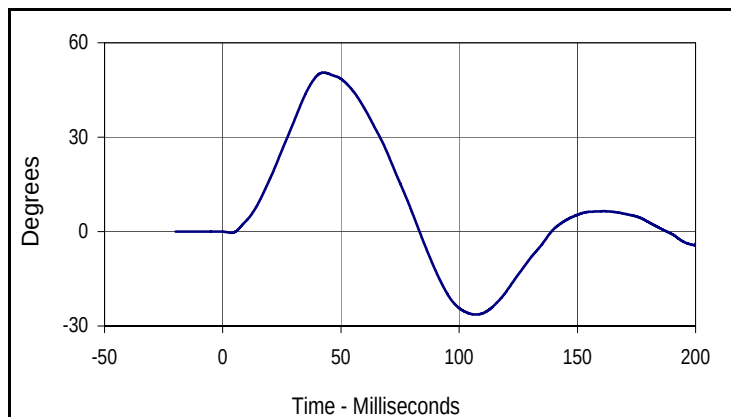
Test Date: 9/27/10
 Test I.D.: SP09E



Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.95 to 6.15	6.04	Pass
Pendulum Deceleration	1 msec	m/s	0.0 to -.050	-0.028	Pass
	3.7 msec	m/s	-.240 to -.425	-0.406	Pass
	27 msec	m/s	-5.80 to -6.50	-5.87	Pass
	30 msec	m/s	< -6.50	-6.34	Pass
Headform Rotation	Max	Degrees	45.0 to 55.0	50.5	Pass
	Time	msec	39.0 to 53.0	42.6	Pass
Maximum Rotation To Time Zero Crossing		msec	37.0 to 57.0	40.7	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.0	-7.4	125.4



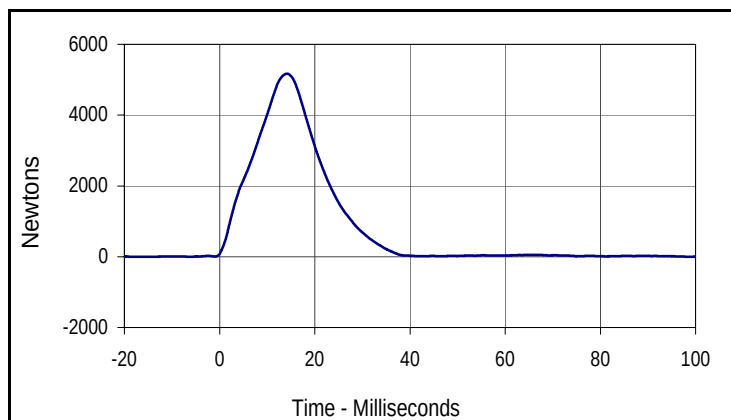
Curve Description			
Headform Rotation			
CURNO	Type	SAE Class	Units
002	FIL	180	Degrees
Max	Time	Min	Time
50.5	42.6	-26.4	107.0

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

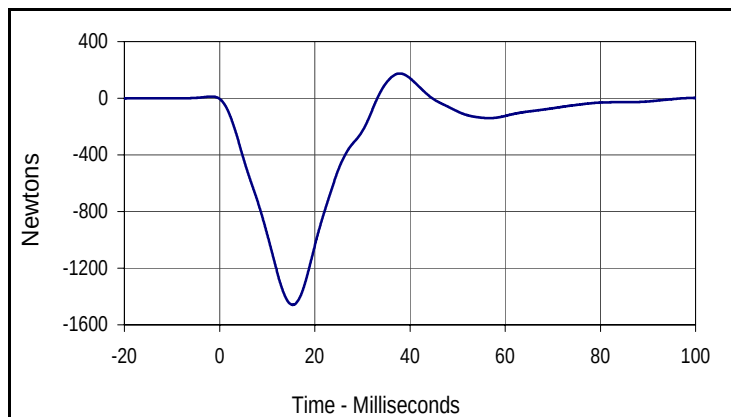
Test Date: 9/27/10
 Test I.D.: PL09E



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.20 to 4.40	4.34	Pass
Impactor Force	N	4700 to 5400	5167.0	Pass
	msec	11.8 to 16.1	14.2	Pass
Pubic Symphysis Load	N	-1230 to -1590	-1459.1	Pass
	msec	12.2 to 17.0	15.4	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
5167.0	14.2	-3.3	-17.5



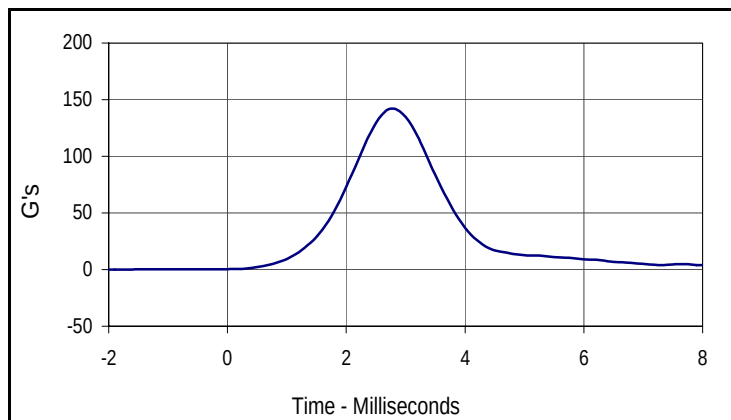
Curve Description			
Pubic FY			
CURNO	Type	SAE Class	Units
002	FIL	60	Newtons
Max	Time	Min	Time
174.8	37.9	-1459.1	15.4

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

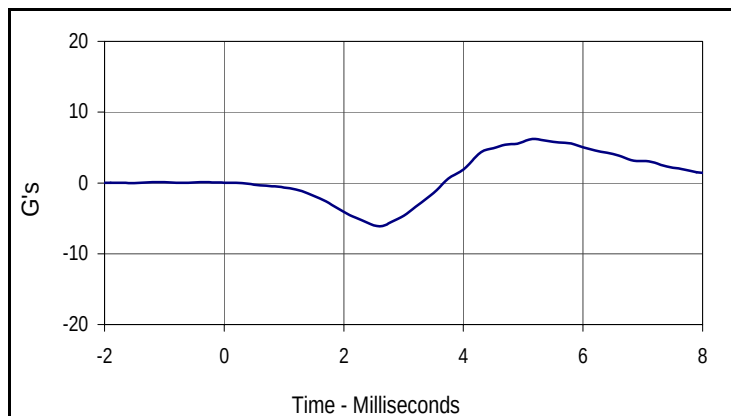
Test Date: 9/27/10
 Test I.D.: HD09E



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	125 to 155	142.2	Pass
Peak Longitudinal Acceleration	G's	≤15	6.2	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	9.0	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
142.2	2.8	0.0	-2.0



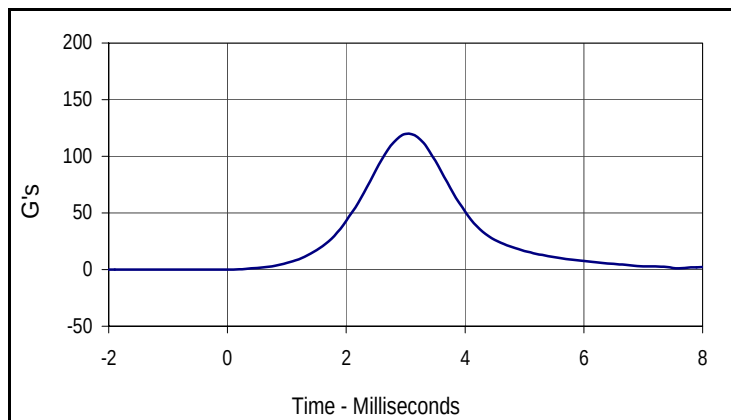
Curve Description			
Head X			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
6.2	5.2	-6.1	2.6

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

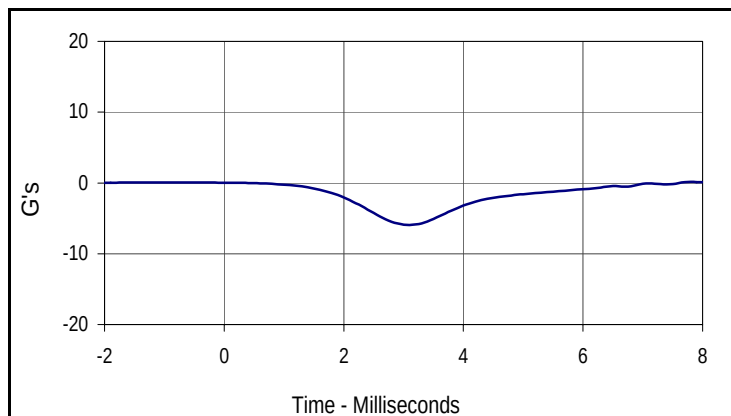
Test Date: 9/27/10
 Test I.D.: HDF09E



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	115 to 137	119.7	Pass
Peak Longitudinal Acceleration	G's	≤15	5.9	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	13.8	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
119.7	3.0	0.0	-0.1



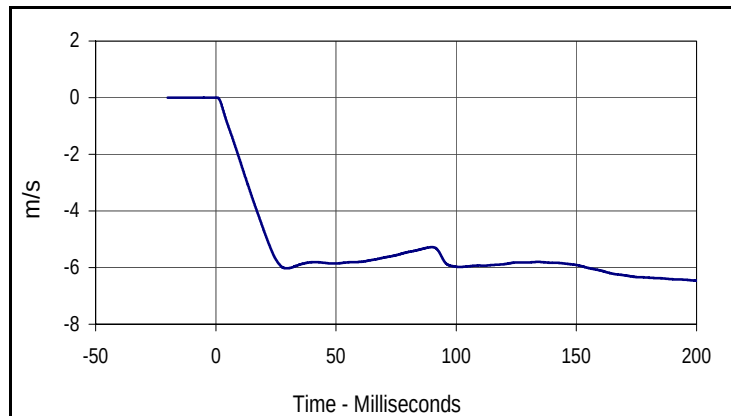
Curve Description			
Head X			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.1	-1.1	-5.9	3.1

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

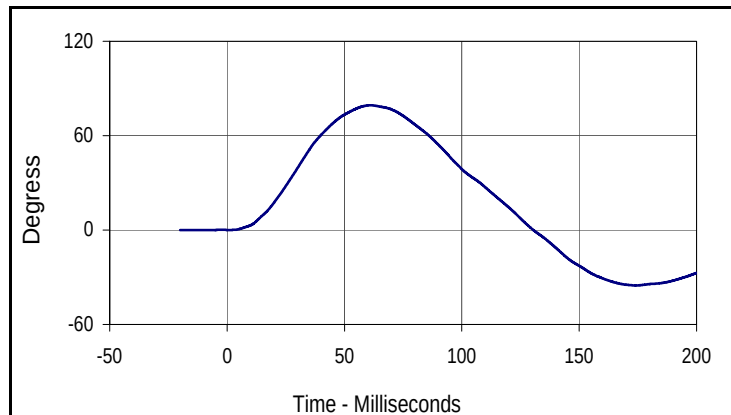
Test Date: 9/27/10
 Test I.D.: NBF09E



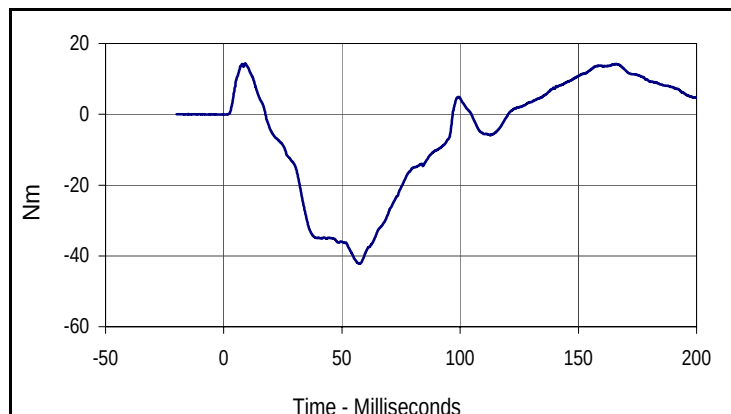
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.51 to 5.63	5.54	Pass
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.2	Pass
	15 msec	m/s	-3.30 to -4.10	-3.5	Pass
	20 msec	m/s	-4.40 to -5.40	-4.7	Pass
	25 msec	m/s	-5.40 to -6.10	-5.7	Pass
	25-100 msec	m/s	-5.50 to -6.20	-6.0	Pass
Translation-Rotation	Max	Degrees	71.0 to 81.0	79.3	Pass
	Time	msec	50.0 to 70.0	61.1	Pass
Peak Occipital Condyle Moment		Nm	-36.0 to -44.0	-42.2	Pass
Decaying Moment Time to Cross 0 Nm		msec	102.0 to 126.0	120.4	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
0.0	0.2	-6.5	200.0



Curve Description			
Maximum Translation Rotation			
CURNO	Type	SAE Class	Units
002	FIL	60	Degress
Max	Time	Min	Time
79.3	61.1	-35.2	174.2



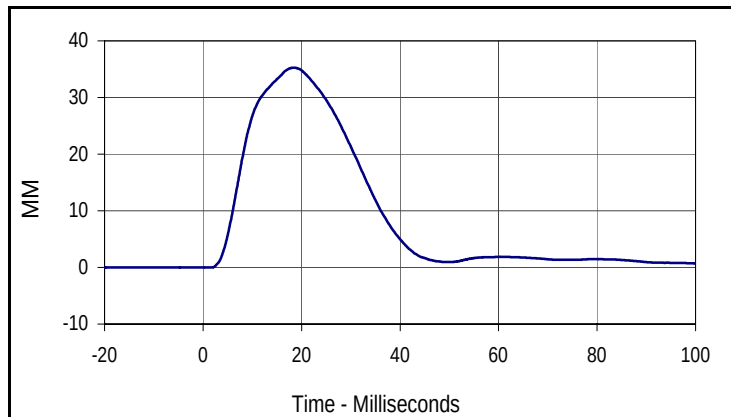
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
14.4	9.0	-42.2	57.4

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

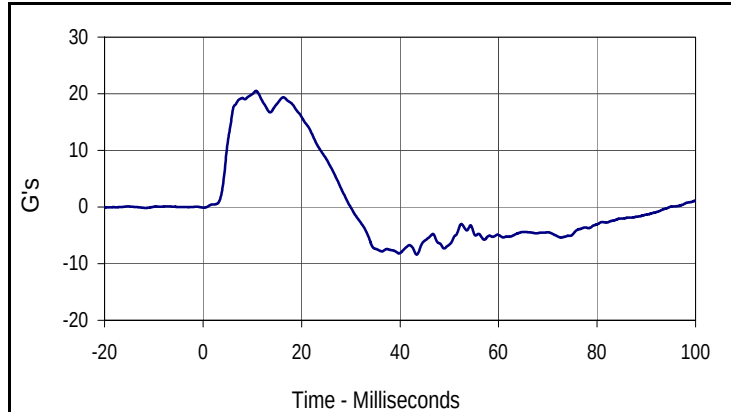
Test Date: 9/27/10
 Test I.D.: SHF09E



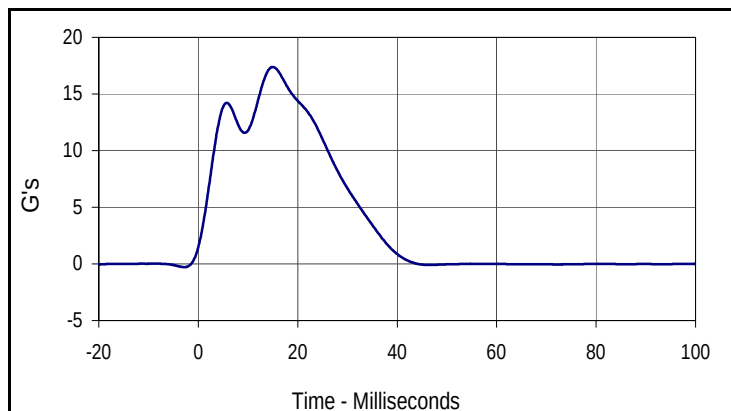
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.30	Pass
Shoulder Deflection	MM	28 to 37	35.3	Pass
Peak Upper Spine Y Acceleration	G's	17 to 22	20.5	Pass
Peak Impactor Acceleration	G's	13 to 18	17.4	Pass
Overall Test Results			Pass	



Curve Description			
Shoulder Acceleration			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
35.3	18.5	0.0	-14.7



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
20.5	10.8	-8.4	43.4



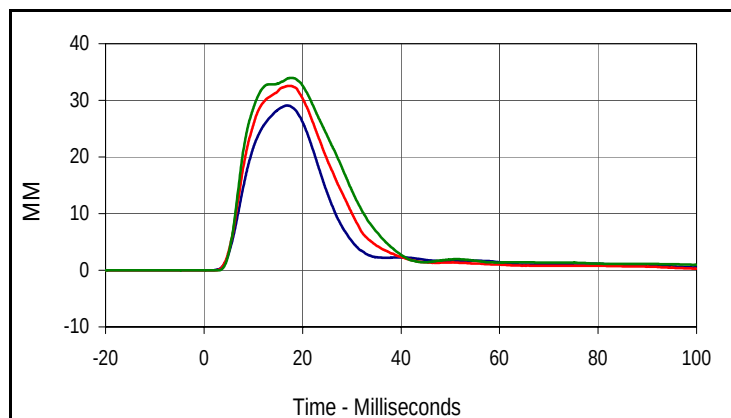
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	60	G's
Max	Time	Min	Time
17.4	15.0	-0.3	-2.8

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

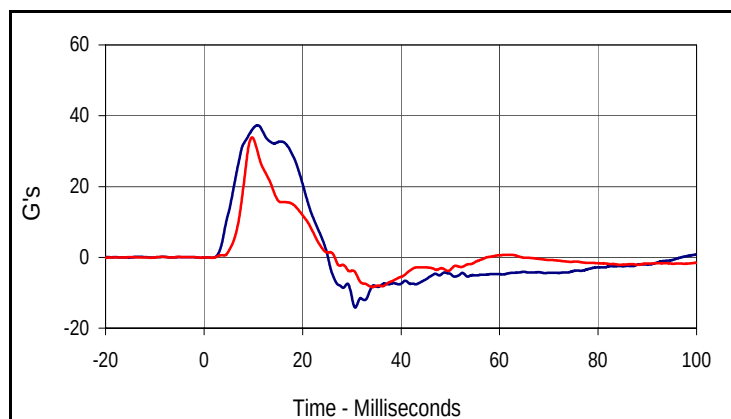
Test Date: 9/27/10
 Test I.D.: THF09E



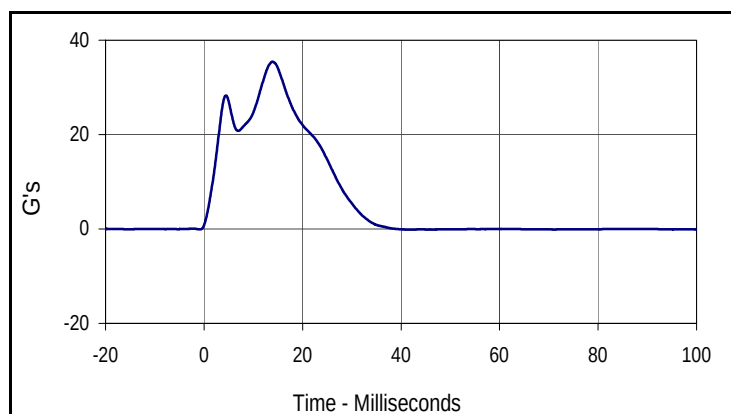
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	6.60 to 6.80	6.61	Pass
Shoulder Deflection	MM	31 to 40	37.3	Pass
Upper Thorax Rib Deflection	MM	25 to 32	29.1	Pass
Middle Thorax Rib Deflection	MM	30 to 36	32.5	Pass
Lower Thorax Rib Deflection	MM	32 to 38	34.0	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	37.3	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	33.9	Pass
Peak Impactor Acceleration After 5 msec.	G's	30 to 36	35.4	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
29.1	16.8	0.0	-5.9
Middle Thorax Deflection			
Max	Time	Min	Time
32.5	17.2	0.0	-7.0
Lower Thorax Deflection			
Max	Time	Min	Time
34.0	17.7	0.0	-3.3



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
37.3	10.9	-14.2	30.7
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
33.9	9.7	-8.4	34.2



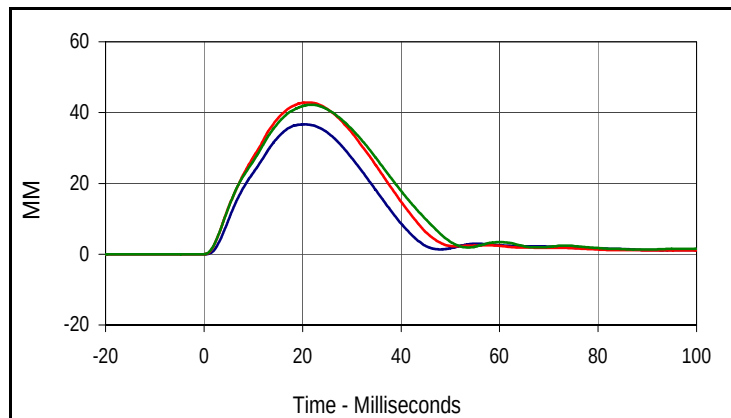
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
35.4	13.9	-0.1	42.5

Test Program: SID IIs Thorax w/o Arm Calibration
 ATD Serial No.: 307

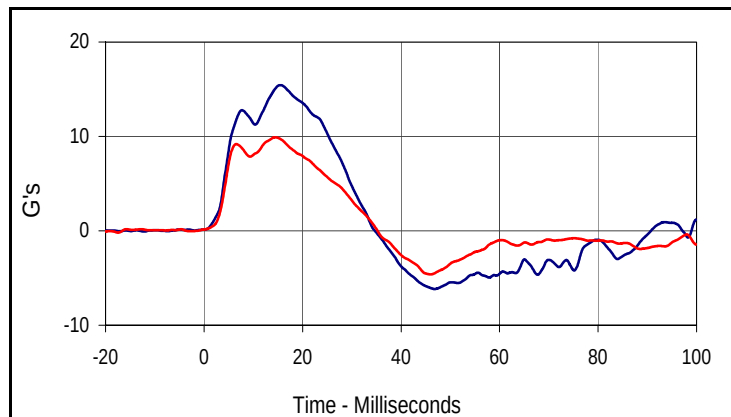
Test Date: 9/27/10
 Test I.D.: TOA09E



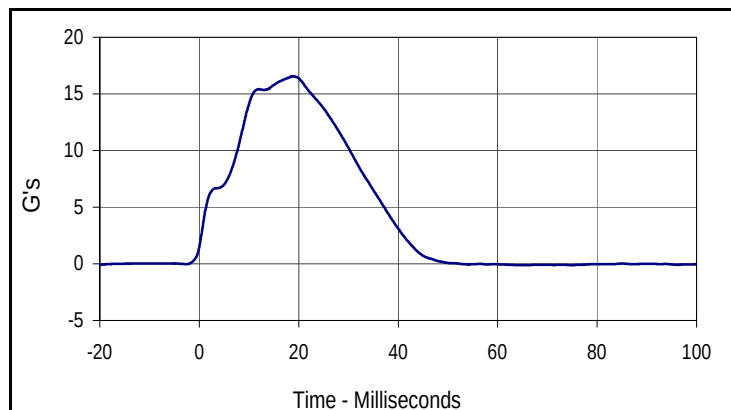
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.36	Pass
Upper Thorax Rib Deflection	MM	32 to 40	36.6	Pass
Middle Thorax Rib Deflection	MM	39 to 45	42.8	Pass
Lower Thorax Rib Deflection	MM	35 to 43	42.2	Pass
Peak Upper Spine Y Acceleration	G's	13 to 17	15.4	Pass
Peak Lower Spine Y Acceleration	G's	7 to 11	9.9	Pass
Peak Impactor Acceleration	G's	14 to 18	16.6	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
36.6	20.4	0.0	-6.1
Middle Thorax Deflection			
Max	Time	Min	Time
42.8	21.1	0.0	-20.0
Lower Thorax Deflection			
Max	Time	Min	Time
42.2	22.0	0.0	-0.8



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.4	15.5	-6.2	46.8
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
9.9	14.5	-4.6	46.1



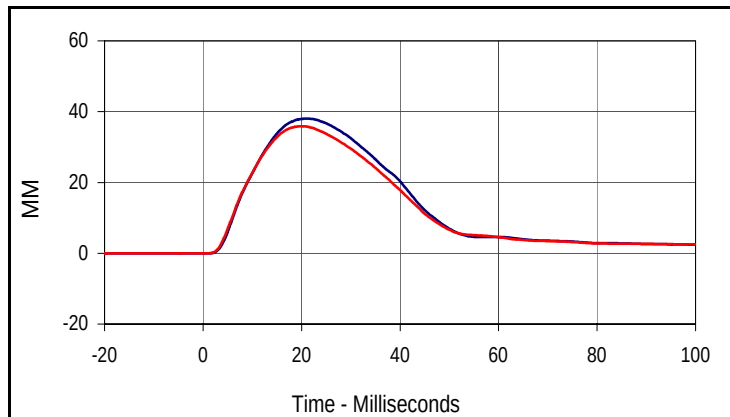
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
16.6	18.9	-0.1	74.8

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

Test Date: 9/27/10
 Test I.D.: ABD09F

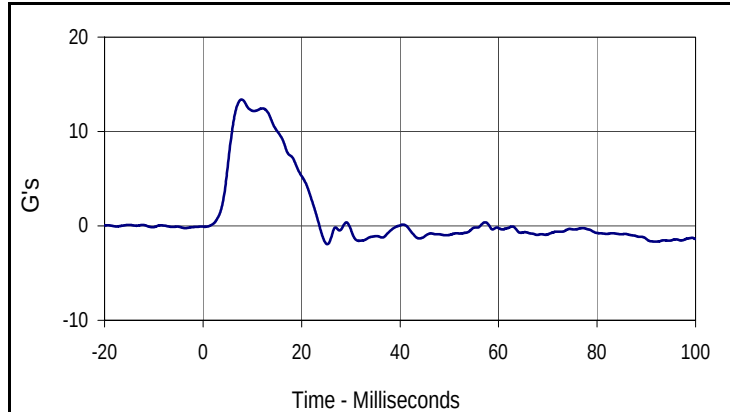


Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.30	Pass
Upper Abdominal Rib Deflection	MM	36 to 47	38.0	Pass
Lower Abdominal Rib Deflection	MM	33 to 44	35.9	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	13.4	Pass
Peak Impactor Acceleration	G's	12 to 16	14.7	Pass
Overall Test Results			Pass	

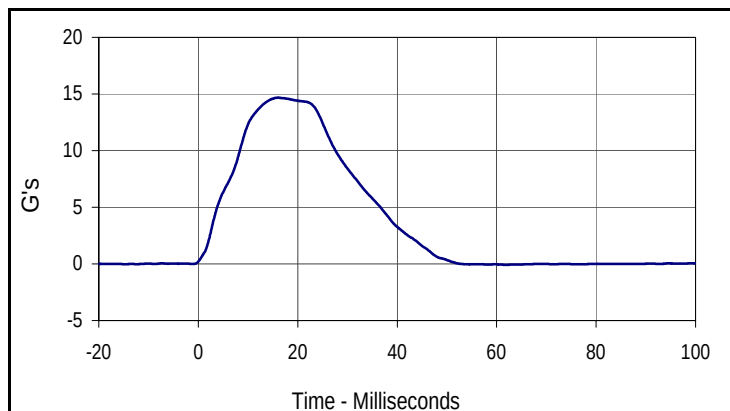


Curve Description			
Upper Abdominal Rib Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
38.0	21.3	0.0	-11.8

Curve Description			
Lower Abdominal Rib Deflection			
CURNO	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
35.9	20.1	0.0	-17.5



Curve Description			
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
13.4	7.8	-1.9	25.2



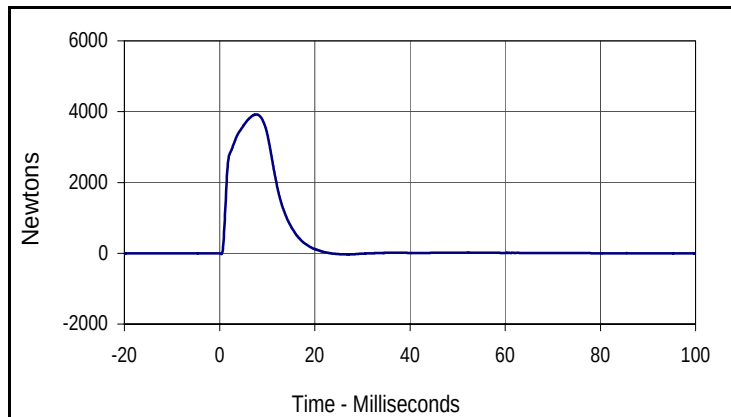
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
14.7	16.0	-0.1	62.0

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

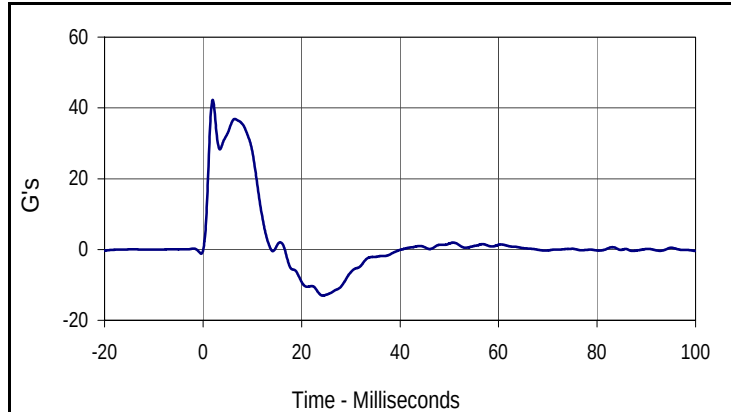
Test Date: 9/27/10
 Test I.D.: PA09E



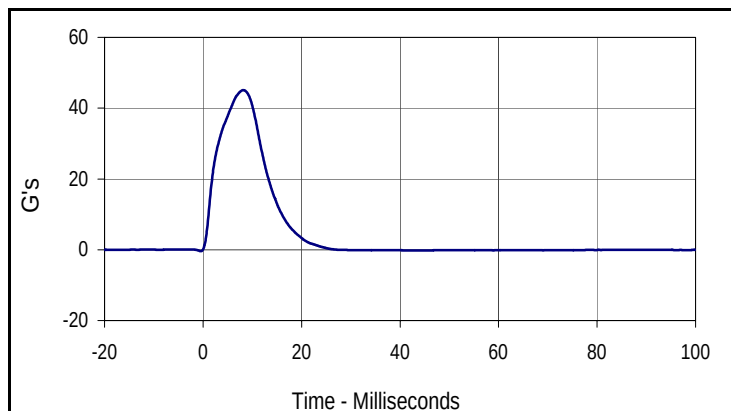
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	6.60 to 6.80	6.71	Pass
Peak Acetabulum Force	Newtons	3600 to 4300	3921.4	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	36.9	Pass
Peak Impactor Acceleration	G's	38 to 47	45.1	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Acetabulum Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3921.4	7.7	-35.3	27.0



Curve Description			
Pelvis Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
42.2	2.0	-13.0	24.3



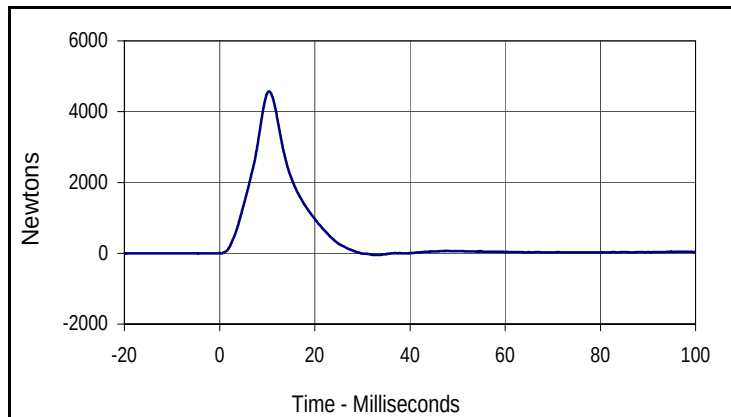
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
45.1	8.2	-0.4	-0.5

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

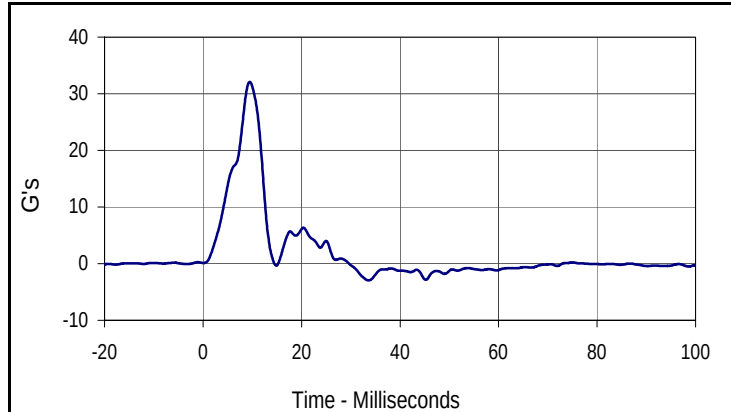
Test Date: 9/20/10
 Test I.D.: PLF09E



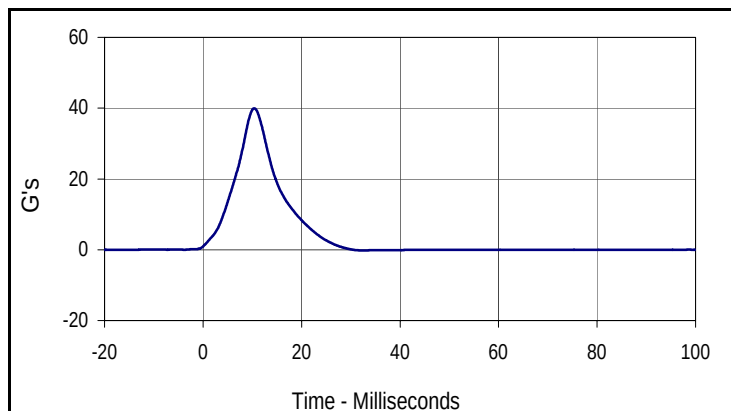
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.27	Pass
Peak Iliac Force	Newtons	4100 to 5100	4572.3	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	32.1	Pass
Peak Impactor Acceleration	G's	36 to 45	39.9	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Iliac Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4572.3	10.4	-49.3	33.0



Curve Description			
Pelvis Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
32.1	9.5	-3.0	33.6



Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
39.9	10.4	-0.2	32.3