

REPORT NUMBER: NCAP-KAR-11-033

**NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST**

**KIA MOTORS CORPORATION
2011 KIA SOUL PLUS 5-DOOR MPV**

NHTSA NUMBER: MB0517

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



OCTOBER 22, 2010

FINAL REPORT

**U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY PERFORMANCE STANDARDS
OFFICE OF CRASHWORTHINESS STANDARDS
1200 NEW JERSEY AVE, SE
ROOM W43-410
WASHINGTON, DC 20590**

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15. Supplementary Notes																																																							
16. Abstract A 56.3 km/h NCAP Frontal Impact Test was conducted on a 2011 Kia Soul Plus 5-Door MPV in accordance with the specifications of the Office of Crashworthiness Standards Frontal NCAP Laboratory Test Procedure. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301 and foot well intrusion performance. The test was conducted at the KARCO Engineering, LLC. facility in Adelanto, California on October 22, 2010. The impact velocity of the vehicle was 56.37 km/h and the ambient temperature at the barrier face at the time of impact was 23.9 deg. C. The target vehicle's post-test maximum crush was 401 mm at DPD3 to the left of the centerline. The test vehicle's performance is as follows: <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th rowspan="2">Units</th> <th colspan="2">Driver ATD</th> <th colspan="2">Passenger ATD</th> </tr> <tr> <th>Threshold</th> <th>Result</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₁₅)</td> <td>N/A</td> <td>700.0</td> <td>337.2</td> <td>700.0</td> <td>334.3</td> </tr> <tr> <td>Maximum Chest Compression</td> <td>mm</td> <td>63</td> <td>-31</td> <td>52</td> <td>-18</td> </tr> <tr> <td>Nij</td> <td>N/A</td> <td>1</td> <td>0.31</td> <td>1</td> <td>0.51</td> </tr> <tr> <td>Neck Tension</td> <td>N</td> <td>4170</td> <td>1626.5</td> <td>2620</td> <td>1160.4</td> </tr> <tr> <td>Neck Compression</td> <td>N</td> <td>4000</td> <td>-78.5</td> <td>2520</td> <td>-489.1</td> </tr> <tr> <td>Left Femur Force</td> <td>N</td> <td>10008</td> <td>-1344.8</td> <td>6805</td> <td>-2661.0</td> </tr> <tr> <td>Right Femur Force</td> <td>N</td> <td>10008</td> <td>-2712.6</td> <td>6805</td> <td>-1064.0</td> </tr> </tbody> </table>				Measurement Description	Units	Driver ATD		Passenger ATD		Threshold	Result	Threshold	Result	Head Injury Criteria (HIC ₁₅)	N/A	700.0	337.2	700.0	334.3	Maximum Chest Compression	mm	63	-31	52	-18	Nij	N/A	1	0.31	1	0.51	Neck Tension	N	4170	1626.5	2620	1160.4	Neck Compression	N	4000	-78.5	2520	-489.1	Left Femur Force	N	10008	-1344.8	6805	-2661.0	Right Femur Force	N	10008	-2712.6	6805	-1064.0
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SECTION 1

PURPOSE AND SUMMARY OF TEST

PURPOSE

This 56.3 km/h frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program, sponsored by the National Highway Traffic Safety Administration (NHTSA) under contract number DTNH22-06-D-00027. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for consumer information purposes.

The 56.3 km/h frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Frontal NCAP Laboratory Test Procedure, dated January, 2010.

SUMMARY

A load cell barrier consisting of 36 load cells was impacted by a 2011 Kia Soul Plus 5-Door MPV at a velocity of 56.37 km/h. The test was performed at KARCO Engineering, LLC. on October 22, 2010. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A of this report.

Three (3) real-time camera and sixteen (16) high-speed cameras were used to document the frontal barrier impact event. Camera locations and other pertinent camera information can be found in Data Sheet 6 of this report.

One Part 572E 50th percentile male anthropomorphic test device (ATD) was placed in the driver seating position and one Part 572O 5th percentile female ATD was placed in the right-front passenger seating position according to dummy placement instructions specified in the Frontal NCAP Laboratory Test Procedure.

Both ATDs were fully instrumented with head, chest and pelvis tri-axial accelerometers, chest displacement potentiometers, upper neck force transducers, right / left femur load cells, and lower leg instrumentation. Seat belt load cells were also on the driver's and passenger's lap and shoulder belts to measure the dummy torso and pelvic section loading. The driver (position 1) ATD (Serial No. 035) and the right-front passenger (position 2) ATD (Serial No. 141) were calibrated prior to this test. Certification details, along with instrumentation calibration data, are found in Appendix C of this report.

The 128 channels of data were recorded on an on-board data acquisition system. Appendix B contains the dummy response data traces.

There was 100% windshield retention and no intrusion into the protected zone of the windshield during the event. There was no Stoddard solvent leakage after the event or during any phase of the static rollover.

The maximum static crush of the test vehicle was 401 mm located at DPD3 to the left of the centerline. Both the driver and passenger side doors remained closed during the impact event and were operable after the impact.

The driver's visible contact points were as follows: The driver ATD's head contacted the airbag. The upper torso contacted the airbag. The left knee contacted the knee bolster and steering column. The right knee contacted the knee bolster.

The passenger's visible contact points were as follows: The passenger ATD's head contacted the airbag. The upper torso contacted the airbag. The left knee contacted the glovebox. The right knee contacted the glovebox and right hand.

The occupant data is summarized below:

ATD Position	HIC ₁₅	T^1	T^2	Chest Disp. (mm)	Nij	Neck Tension (N)	Neck Comp. (N)	Left Femur (N)	Right Femur (N)
Driver (50th)	337.2	73.0	88.0	-31	0.31	1626.5	-78.5	-1344.8	-2712.6
Passenger (5th)	334.3	61.1	76.1	-18	0.51	1160.4	-489.1	-2661.0	-1064.0

SECTION 2
DATA SHEETS

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV NHTSA No.: MB0517
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/22/10

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	N•m	1.355

DATA SHEET NO. 1**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV NHTSA No.: MB0517
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/22/10

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	MB0517
Make	Kia
Model	Soul Plus
Body Style	5-Door MPV
VIN	KNDJ2A25B7705216
Body Color	Bright Silver
Delivery Date	9/10/2010
Odometer Reading (mi)	120
Odometer Reading (km)	193
Dealer	Car Pros Kia
Transmission	4-Speed Automatic
Final Drive	Front
Type / No. of Cylinders	Inline 4
Engine Displacement (L)	2.0
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
Pass. Front Airbag	Yes
Pass. Curtain Airbag	Yes
Pass. Head/Torso Airbag	No
Pass. Torso Airbag	No
Pass. Torso/Pelvis Airbag	Yes
Pass. Pelvis Airbag	No
Pass. Knee Airbag	No
Pre-Tensioners	Yes
Load Limiters	Yes
Automatic Door Locks	No
Tilt Steering	Yes
Other	

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

☐
DATA FROM CERTIFICATION LABEL

Manufactured By	Kia Motors Corporation
Date of Manufacture	Jun-10

GVWR (kg)	1760
GAWR Front (kg)	980
GAWR Rear (kg)	970

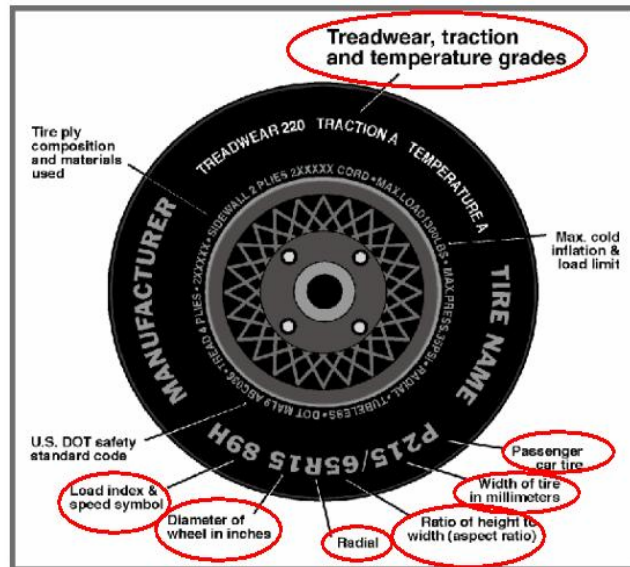
VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench		
Number of Occupants	2	3		5
Capacity Weight (VCW) (kg)				385.0
Cargo Weight (RCLW) (kg)				44.8

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2011 Kia Soul Plus 5-Door MPV	NHTSA No.:	MB0517
Test Program:	56 km/h Frontal Impact NCAP Test	Test Date:	10/22/10



VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	230	230
Recommended Tire Size	P205/55R16	P205/55R16
Tire Size on Vehicle	P205/55R16	P205/55R16
Tire Manufacturer	Nexen	Nexen
Tire Model	CP662	CP662
Treadwear	440	440
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Nylon	1 Polyester, 2 Steel, 1 Nylon
Load Index / Speed Symbol	89H	89H
Tire Material	Polyester, Steel, Nylon	Polyester, Steel, Nylon
DOT Safety Code Left	8E8K MBDR 2410	8E8K LBCL 2410
DOT Safety Code Right	8E8K MMKL 2410	8E8K MMKL 2410

DATA SHEET NO. 1 ... (CONTINUED)**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV NHTSA No.: MB0517
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/22/10

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	407.0	248.0		442.5	312.0	
Right	kg	393.0	245.0		418.0	300.0	
Ratio	%	61.9%	38.1%	100.0%	58.4%	41.6%	100.0%
Total	kg	800.0	493.0	1293.0	860.5	612.0	1472.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1293.0	A
Weight of 1 P572E ATD & 1 P572O ATD	kg	141.0	B
Rated Cargo/Luggage Weight (RCLW)	kg	44.8	C
Calculated Vehicle Target Weightt (TVTW)	kg	1478.8	A+B+C

TEST VEHICLE ATTITUDES

Condition	Units	LF	RF	LR	RR	CG Aft of Front Axle
As Delivered	mm	689	689	714	709	972
As Tested	mm	677	674	690	690	1060
Post-Test	mm	676	684	694	674	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheel Base	mm	2550
Total Vehicle Length at Left Side	mm	3454
Total Vehicle Length at Centerline	mm	4105
Total Vehicle Length at Right Side	mm	3447
Weight of Ballast in Cargo Area	kg	66.5
Weight of Vehicle Components Removed	kg	23.5
Amount of Stoddard Solvent in Fuel Tank	L	44.63

VEHICLE COMPONENTS REMOVED TO MEET TEST WEIGHT:

Rear seat headrests (2.0 kg), Rear seat cushion (6.5 kg), Rear door panels (4.0 kg), Rear door windows (9.0 kg), Rear door speakers (2.0 kg)

DATA SHEET NO. 1 ... (CONTINUED)**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV NHTSA No.: MB0517
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/22/10

TARGET VEHICLE STRUCTURAL MEASUREMENTS

No.	Description	Pre-Test	Post-Test	Difference
1	Total Length	4105	3810	-295
2	Total Width	1782	1992	210
3	Bumper Top Height	580	637	57
4	Bumper Bottom Height	238	381	143
5	Longitudinal Member Top Height	518	573	55
6	Distance Between Longitudinal Members	895	877	-18
7	Longitudinal Member Width	60	63	3
8	Engine Top Height	589	818	229
9	Engine Bottom Height	162	107	-55
10	Engine and Gearbox Width	560	560	0
11	Front Bumper to Engine Distance	542	434	-108
12	Front Shock Absorber Fixing Height	877	908	31
13	Bonnet Leading Edge Height	883	933	50
14	Front Shock Absorber Fixing Width	1116	1081	-35
15	Front Bumper to Front Axle Distance	825	533	-292
16	Front Axle to A-Pillar Distance	468	388	-80
17	A-Pillar to B-Pillar Distance	942	932	-10
18	B-Pillar to Rear Axle Distance	1059	1066	7
19	B-Pillar to C-Pillar Distance	557	831	274
20	Roof Sill Bottom Height	1436	1452	16
21	Roof Sill Top Height	1567	1597	30
22	Floor Sill Bottom Height	223	249	26
23	Floor Sill Top Height	401	417	16

All measurements in millimeters.

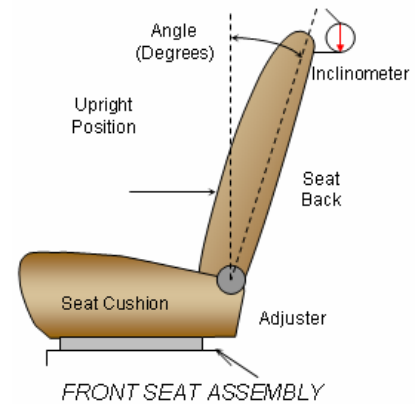
DATA SHEET NO. 2

SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV NHTSA No.: MB0517
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/22/10

NOMINAL DESIGN RIDING POSITION

The procedure for the driver is as follows: the seat back is set to the manufacturer's designated angle. The procedure for the passenger is as follows: the seat back is set to position the transverse instrumentation platform of the dummy's head at $0^\circ \pm 0.5^\circ$. Seat back angle is measured at the headrest post using a digital inclinometer.

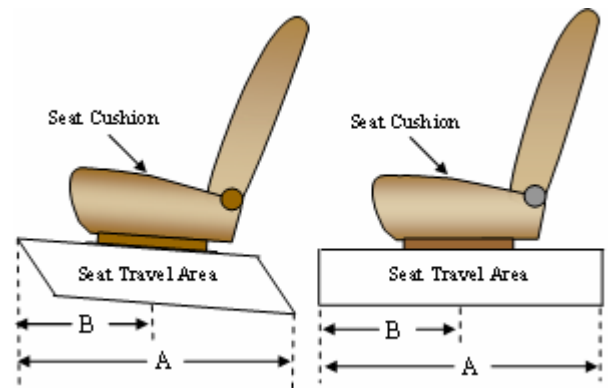


SEAT BACK ANGLE

Seating Position	Degrees
Driver Seat Back Angle	0.6
Passenger Seat Back Angle	2.3

SEAT FORE / AFT POSITIONING

The total seat travel is measured from the forward most possible position to the rearmost possible position. The driver's seat is set to the measured mid-travel. The passenger's seat is set to the forward most position where the ATD will not contact any interior panels, full forward for this test.



SEAT FORE/AFT POSITIONS

Seating Position	Total Fore-Aft Travel	Placed in Position
Driver Seat	230 mm	115 mm
Passenger Seat	230 mm	0 mm

SEAT BELT UPPER ANCHORAGE

The seat belt upper anchorage is positioned to the manufacturer's design position for a 50th percentile adult male ATD for the driver, and a 5th percentile adult female ATD for the passenger. Position zero (0) is the uppermost position.

SEAT BELT UPPER ANCHORAGES

Seating Position	Total No. of Positions	Placed in Position
Driver Seat	4	1
Passenger Seat	4	3

DATA SHEET NO. 2 ... (CONTINUED)

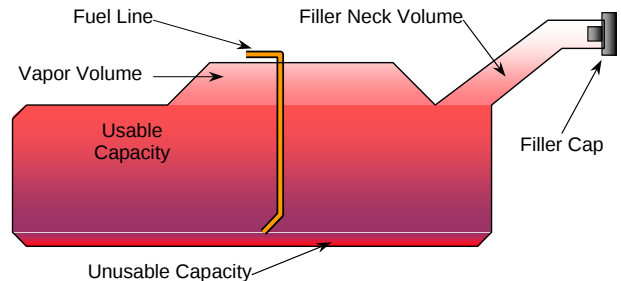
SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV NHTSA No.: MB0517
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/22/10

FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank"	47.99
Usable Capacity of "Optional Tank"	
92 - 94% of Usable Capacity	44.15 to 45.11
Actual Amount of Stoddard Solvent Used	44.63
1/3 of Usable Capacity	16.00

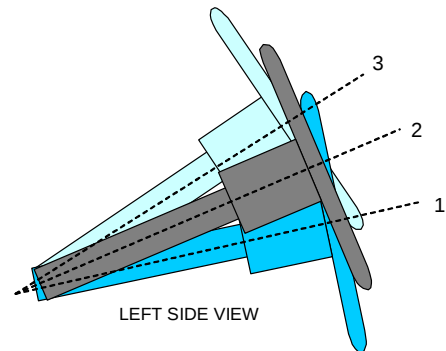
The test vehicle is equipped with an electric fuel pump. The fuel pump operates when the vehicle is running. The fuel filler door is located on the left rear fender. The standard fuel tank occupies the area under the rear seat.



VEHICLE FUEL TANK ASSEMBLY

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 ASSEMBLY

STEERING COLUMN POSITIONING

	Degrees	Fore-Aft Position (mm)
Lowermost Position, No. 1	24.8	
Geometric Center Position, No. 2	27.1	
Uppermost Position, No. 3	29.4	
Telescoping Steering Wheel Travel		
Test Position	27.1	

DATA SHEET NO. 3

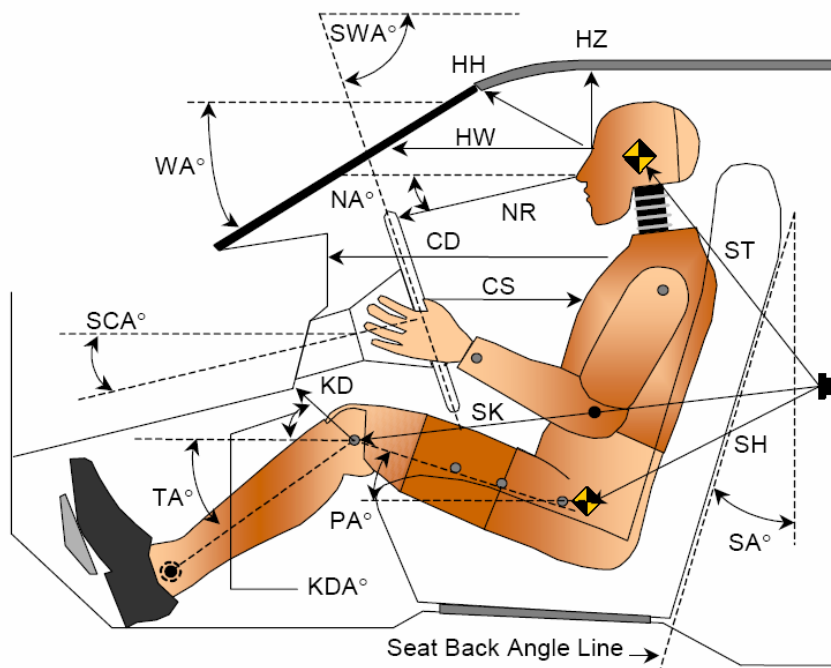
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV

NHTSA No.: MB0517

Test Program: 56 km/h Frontal Impact NCAP Test

Test Date: 10/22/10



Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA°	Windshield Angle		35.5		
SWA°	Steering Wheel Angle		27.4		
SCA°	Steering Column Angle		62.6		
SA°	Seat Back Angle (On Headrest Post)		0.6		2.3
HZ	Head to Roof	238	90.0	274	90.0
HH	Head to Header	430	25.4	376	41.1
HW	Head to Windshield	689	0.0	631	0.0
HR	Head to Side Header	254	43.0	308	45.0
NR	Nose to Rim	398	12.1	489	28.6
CD	Chest to Dash	523	8.4	447	5.2
CS	Chest to Steering Hub	310	12.2		
RA	Rim to Abdomen	192	0.0		
KDL	Left Knee to Dash	200	22.0	104	33.7
KDR	Right Knee to Dash	162	26.8	120	34.3
PA°	Pelvic Angle		21.6		19.2
TA°	Tibia Angle		47.4		52.2
SK	Striker to Knee	575	5.5	681	7.1
ST	Striker to Head	530	78.8	506	66.0
SH	Striker to H-Point	242	39.0	359	19.4

DATA SHEET NO. 4

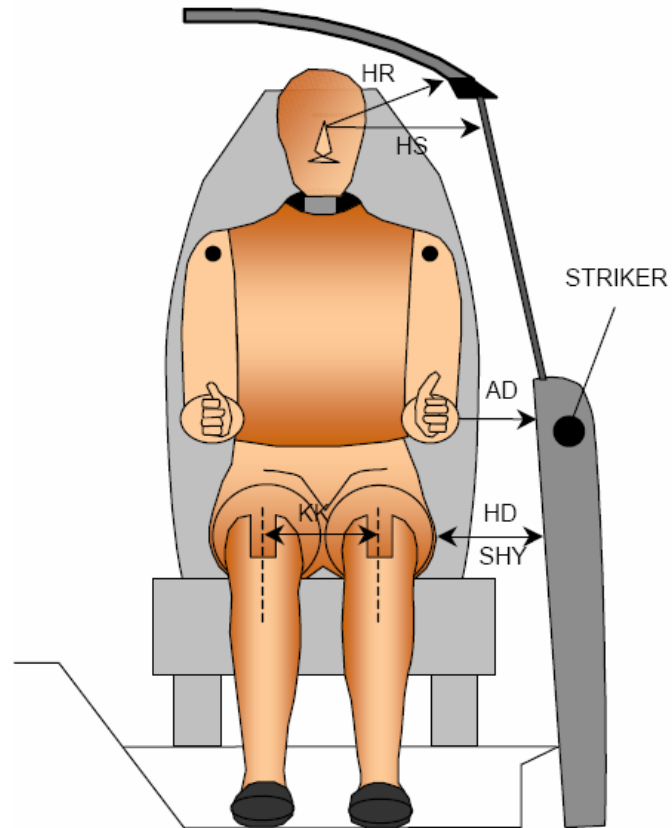
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV

NHTSA No.: MB0517

Test Program: 56 km/h Frontal Impact NCAP Test

Test Date: 10/22/10



Code	Description	Driver (mm)	Passenger (mm)
AD	Arm to Door	126	84
HD	H-Point to Door	153	175
HR	Head to Side Header	254	308
HS	Head to Side Window	345	360
KK	Knee to Knee	339	227
SHY	Striker to H-Point (Y-Direction)	243	356
AA	Ankle to Ankle	339	174

DATA SHEET NO. 5

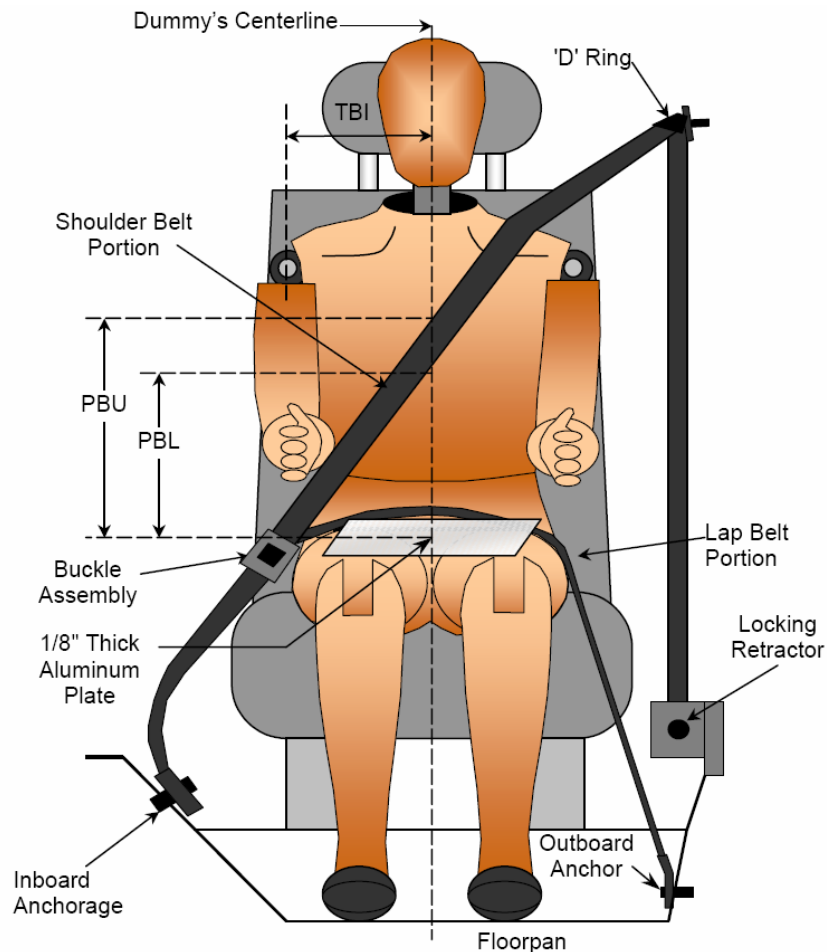
SEAT BELT POSITIONING DATA

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV

NHTSA No.: MB0517

Test Program: 56 km/h Frontal Impact NCAP Test

Test Date: 10/22/10



FRONT VIEW OF DUMMY

SEAT BELT POSITIONING MEASUREMENTS

Code	Measurement Description	Units	Driver	Passenger
PBU	Top Surface of Aluminum Plate to Belt Upper Edge	mm	360	337
PBL	Top Surface of Aluminum Plate to Belt Lower Edge	mm	285	267

BELT LENGTH DATA

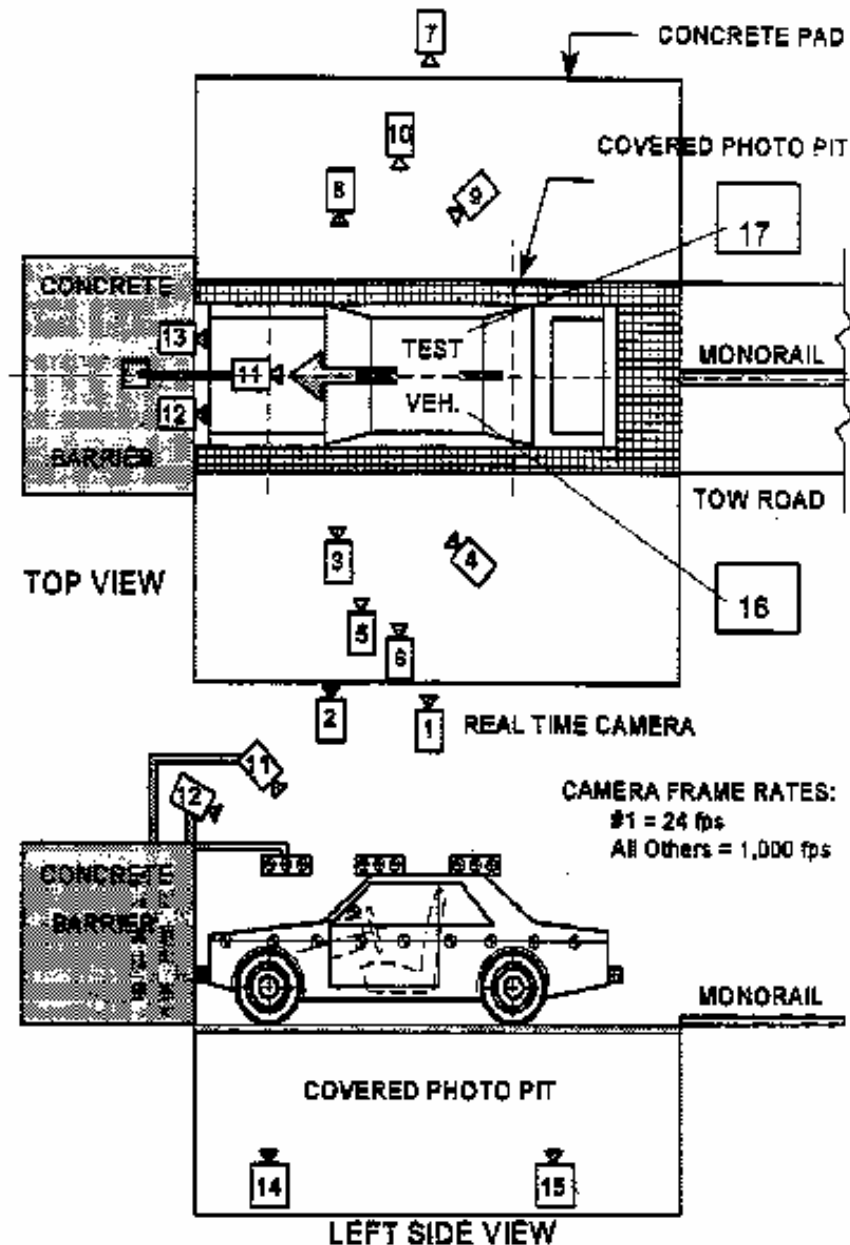
Measurement Description	Units	Driver	Passenger
Shoulder Belt Length as Measured on ATD	mm	910	912
Lap Belt Length as Measured on ATD	mm	845	923
Remainder of Belt on Reel	mm	855	798
Total Belt Length for Continuous Webbing Systems	mm	2610	2633

DATA SHEET NO. 6

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV NHTSA No.: MB0517
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/22/10

CAMERA POSITIONS FOR FRONTAL IMPACTS



DATA SHEET NO. 6 ... (CONTINUED)

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV NHTSA No.: MB0517
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/22/10

CAMERA LOCATIONS

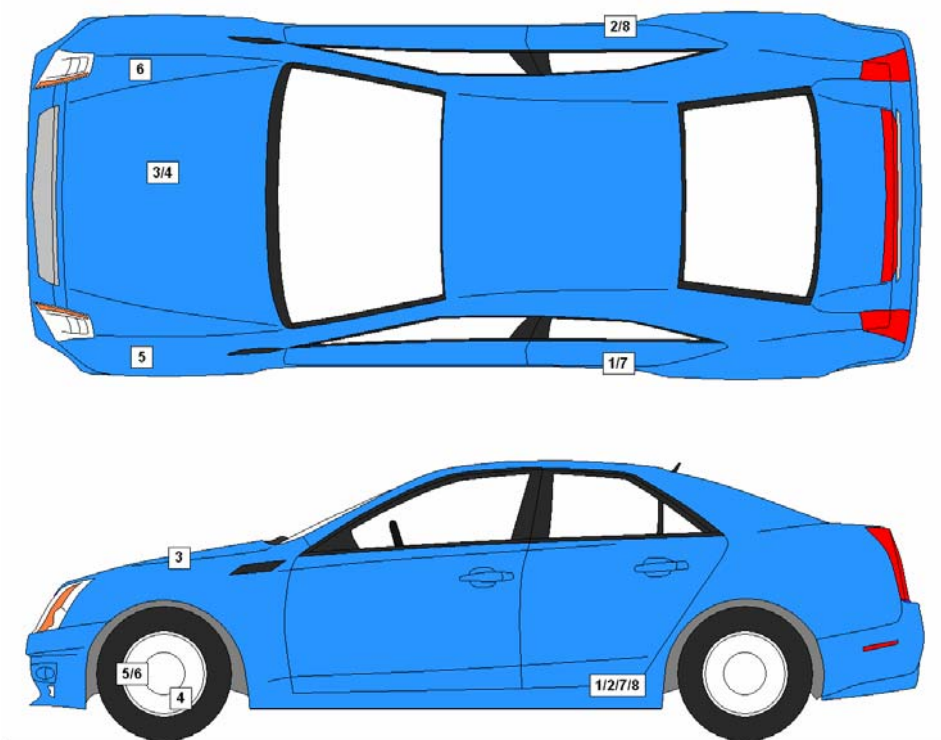
No.	Description	Location			Angle (°)	Film Plane to Head Target	Lens (mm)	Speed (fps)
		X	Y	Z				
1	Real-Time Camera	-11412	-8150	-1484				30
2	Overall Left Side	-2590	-7950	-1371	0	9881	24	1000
3	Left Side A-Pillar	-1701	-6197	-1701	0	7921	50	1000
4	Left Side B-Pillar	-6696	-10308	-3211	-17	11281	ZOOM	1000
5	Steering Column Upper	-1966	-10412	-3688	-13	9887	50	1000
6	Steering Column Lower	-1972	-10412	-3379	-13	9870	50	1000
7	Overall Right Side	-2336	7569	-1012	0	9417	24	1000
8	Right Side A-Pillar	-1733	7581	-1408	0	7789	50	1000
9	Passenger IP View	-1600	8214	-1811	0	7795	ZOOM	1000
10	Right Side B-Pillar	-6217	9516	-4830	-10	12626	ZOOM	1000
11	Overhead Windshield View	297	366	-2460	-34		12	1000
12	Overhead Driver View	297	-366	-2460	-34		12	1000
13	Overhead Passenger View	-354	0	-5749	-90		24	1000
14	Pit View of Engine Compartment	-756	0	1495	90		12	1000
15	Pit View of Fuel Tank	-3398	0	1495	90		8	1000
16	Driver's On Board View	-2990	-248	-1567	-22		12	1000
17	Passenger's On Board View	-2990	248	-1567	-22		12	1000

Coordinates: +X = forward impact plane
 +Y = right of monorail center
 +Z = into ground

DATA SHEET NO. 7

VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV NHTSA No.: MB0517
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/22/10



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Description	Location		
		X	Y	Z
1	Left Rear Cross Member X	1380	-755	-384
2	Right Rear Cross Member X	1380	755	-384
3	Engine Top X	3248	110	-632
4	Engine Bottom X	3292	347	-162
5	Left Brake Caliper X	3380	-815	-310
6	Right Brake Caliper X	3380	815	-310
7	Left Rear Cross Member Z	1380	-755	-384
8	Right Rear Cross Member Z	1380	755	-384

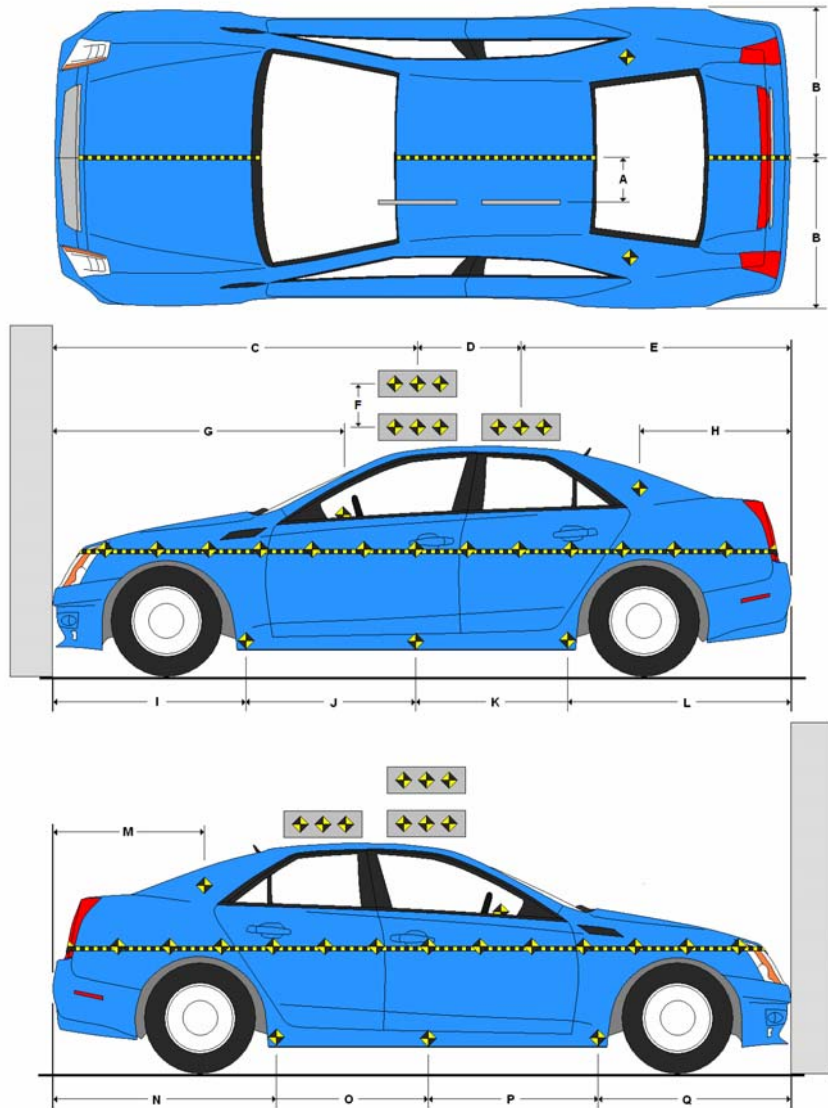
Reference Points: X – Rear Surface of Vehicle (+ forward)
Y – Vehicle Centerline (+ to right)
Z – Ground Plane (+ down)

DATA SHEET NO. 8

PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV NHTSA No.: MB0517
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/22/10

Item	Value
A	400
B	891
C	1969
D	610
E	1535
F	
G	1562
H	552
I	1274
J	831
K	831
L	1159
M	549
N	1158
O	833
P	833
Q	1272



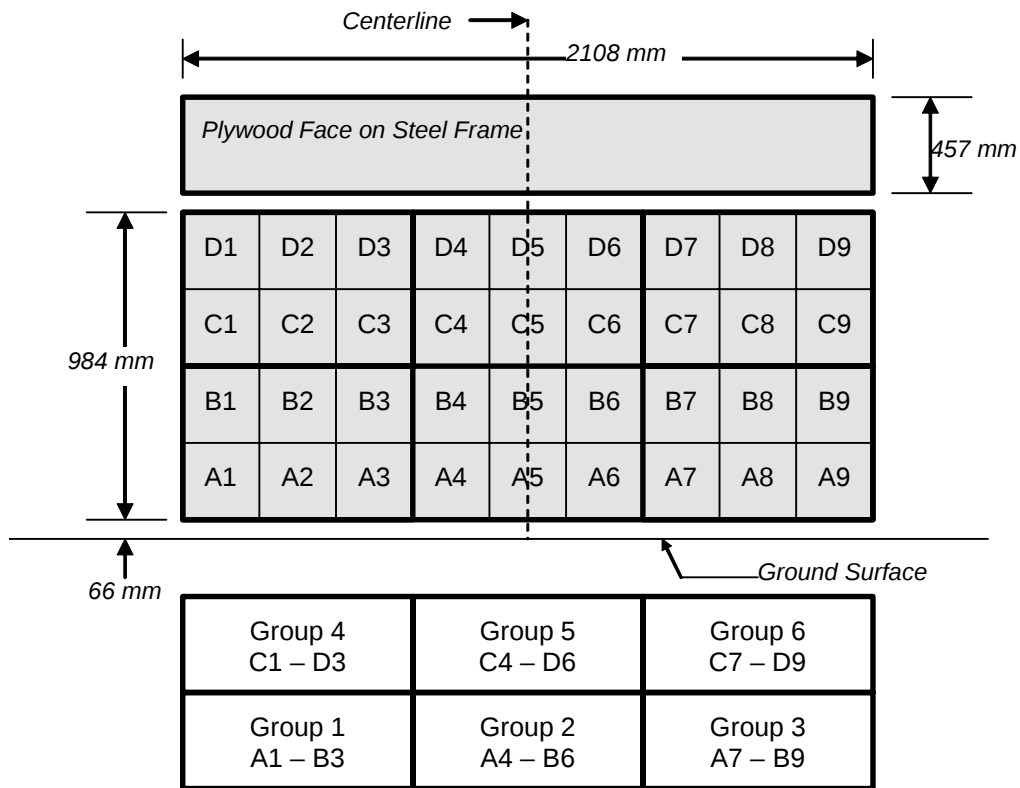
All measurements in millimeters.

DATA SHEET NO. 9

LOAD CELL LOCATIONS ON FIXED BARRIER

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV NHTSA No.: MB0517
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/22/10

36 Load Cell Rigid Barrier (NHTSA Standard) Load Cell Locations on Fixed Barrier



6 Groups of 6 Load Cells Each

DATA SHEET NO. 10**TEST VEHICLE CAMERA AND INSTRUMENTATION SUMMARY**

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV NHTSA No.: MB0517
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/22/10

INSTRUMENTATION

Driver Dummy Accelerometers	44
Passenger Dummy Accelerometers	44
Vehicle Structure Accelerometers	8
Load Cell Barrier	36
Total	132

CAMERA COVERAGE

High-Speed Vehicle On-Board	2
High-Speed Offboard	14
Real Time	3
Total	19

DATA SHEET NO. 11**POST-TEST OBSERVATIONS**Test Vehicle: 2011 Kia Soul Plus 5-Door MPVNHTSA No.: MB0517Test Program: 56 km/h Frontal Impact NCAP TestTest Date: 10/22/10**TEST DUMMY INFORMATION AND CONTACT**

Description	Driver	Passenger
Dummy Type/Serial No.	P572E 50th Percentile Male ATD / 035	P572O 5th Percentile Female ATD / 141
Head Contact	Airbag	Airbag
Upper Torso Contact	Airbag	Airbag
Lower Torso Contact	None	None
Left Knee Contact	Knee Bolster, Steering Column	Glovebox
Right Knee Contact	Knee Bolster	Glovebox, Right Hand

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Locked / Unlocked Doors	Unlocked	Unlocked
Front Door Opening	Remained closed and latched, operational	Remained closed and latched, operational
Rear Door Opening	Remained closed and latched, operational	Remained closed and latched, operational
Seat Track Shift (mm)	4	11
Seat Back Failure	None	None
Glazing Damage	None	None

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Windshield Damage	Cracked
Window Damage	None
Other Notable Effects	Shoulder belt pulled down

VEHICLE REBOUND FROM BARRIER

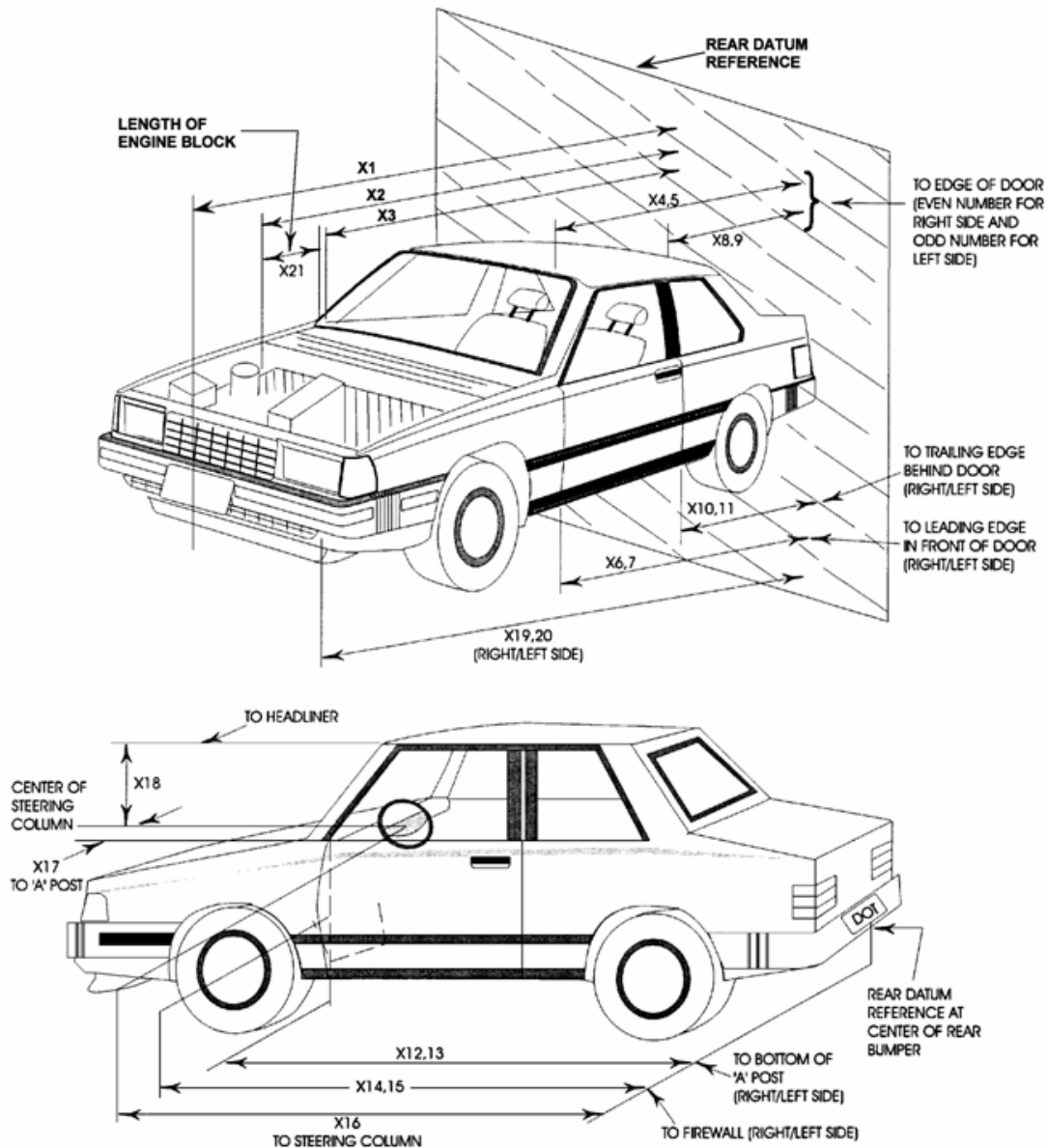
Measured Parameter	Units	Value
Left Side	mm	2118
Center	mm	2034
Right Side	mm	2131
Average	mm	2094

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Driver		Passenger	
	Installed	Operated	Installed	Operated
Front Airbag	Yes	Yes	Yes	Yes
Curtain Airbag	Yes	No	Yes	No
Torso/Pelvis Airbag	Yes	No	Yes	No
Knee Airbag	No		No	
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes
Other				

DATA SHEET NO. 12 **VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV NHTSA No.: MB0517
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/22/10

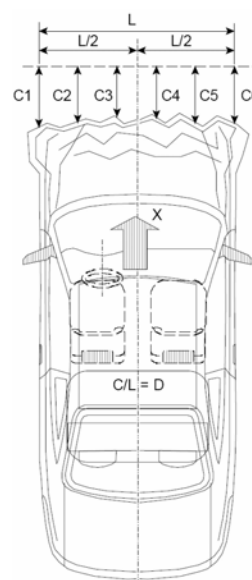


DATA SHEET NO. 12 ... (CONTINUED)**VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV NHTSA No.: MB0517
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/22/10

No.	Description	Pre-Test	Post-Test	Difference
1	Total Length of Vehicle at Centerline	4105	3810	-295
2	Rear Surface of Vehicle to Front of Engine	3563	3376	-187
3	RSOV to Firewall	3235	3173	-62
4	RSOV to Upper Leading Edge of Right Door	2837	2857	20
5	RSOV to Upper Leading Edge of Left Door	2845	2858	13
6	RSOV to Lower Leading Edge of Right Door	2790	2798	8
7	RSOV to Lower Leading Edge of Left Door	2792	2790	-2
8	RSOV to Upper Trailing Edge of Right Door	1762	1779	17
9	RSOV to Upper Trailing Edge of Left Door	1762	1776	14
10	RSOV to Lower Trailing Edge of Right Door	1782	1787	5
11	RSOV to Lower Trailing Edge of Left Door	1786	1784	-2
12	RSOV to Bottom of A-Pillar of Right Side	2788	2783	-5
13	RSOV to Bottom of A-Pillar Left Side	2777	2791	14
14	RSOV to Firewall, Right Side	3190	3122	-68
15	RSOV to Firewall, Left Side	3190	3129	-61
16	RSOV to Steering Column	2397	2514	117
17	Center of Steering Column to A-Pillar	402	402	0
18	Center of Steering Column to Headliner	495	496	1
19	RSOV to Right Side of Front Bumper	3447	3399	-48
20	RSOV to Left Side of Front Bumper	3454	3366	-88
21	Length of Engine Block	470	470	0
RD	RSOV to Right Side of Dash Panel	2585	2607	22
CD	RSOV to Center of Dash Panel	2567	2429	-138
LD	RSOV to Left Side of Dash Panel	2592	2604	12

All measurements in millimeters.

DATA SHEET NO. 13**ACCIDENT INVESTIGATION DATA**Test Vehicle: 2011 Kia Soul Plus 5-Door MPVNHTSA No.: MB0517Test Program: 56 km/h Frontal Impact NCAP TestTest Date: 10/22/10**VEHICLE INFORMATION**VIN: KNDJT2A25B7705216Wheelbase (mm): 2550Vehicle Size Category: 5-Door MPVTest Weight (kg): 1472.5**ACCELEROMETER DATA**Accelerometer Locations: Left Rear CrossmemberCal. Procedure/Interval: Drop Test / 6 monthsIntegration Algorithm: NHTSA StandardImpact Velocity (km/h): 56.37Velocity Change (km/h): 64.7Time of Separation (msec): 63.9Linearity: Good**CRUSH PROFILE**Collision Deformation Classification: 12FCEW2Midpoint of Damage: Vehicle CenterlineDamage Region Length (mm): 1781Impact Mode: Full Frontal

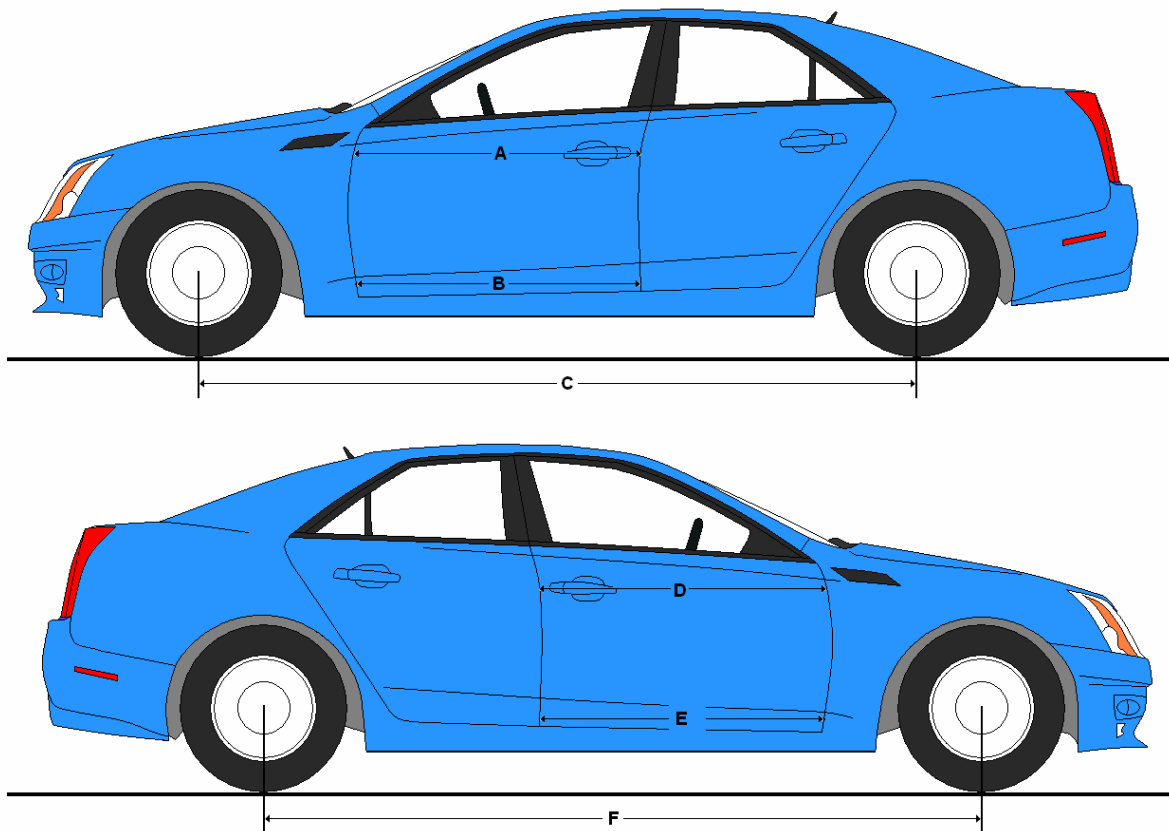
No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush Zone 1 at Left Side	mm	655	781	-126
C2	Crush Zone 2 at Left Side	mm	146	508	-362
C3	Crush Zone 3 at Left Side	mm	28	429	-401
C4	Crush Zone 4 at Right Side	mm	28	414	-386
C5	Crush Zone 5 at Right Side	mm	145	475	-330
C6	Crush Zone 6 at Right Side	mm	655	717	-62
L	C1 to C6	mm	1781		

DATA SHEET NO. 14**VEHICLE INTRUSION MEASUREMENTS**Test Vehicle: 2011 Kia Soul Plus 5-Door MPVNHTSA No.: MB0517Test Program: 56 km/h Frontal Impact NCAP TestTest Date: 10/22/10**DOOR OPENING WIDTH**

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	942	432	510
B	Left Side Lower	mm	805	799	6
D	Right Side Upper	mm	939	930	9
E	Right Side Lower	mm	787	788	-1

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2550	2484	66
F	Right Side Wheelbase	mm	2550	2581	-31



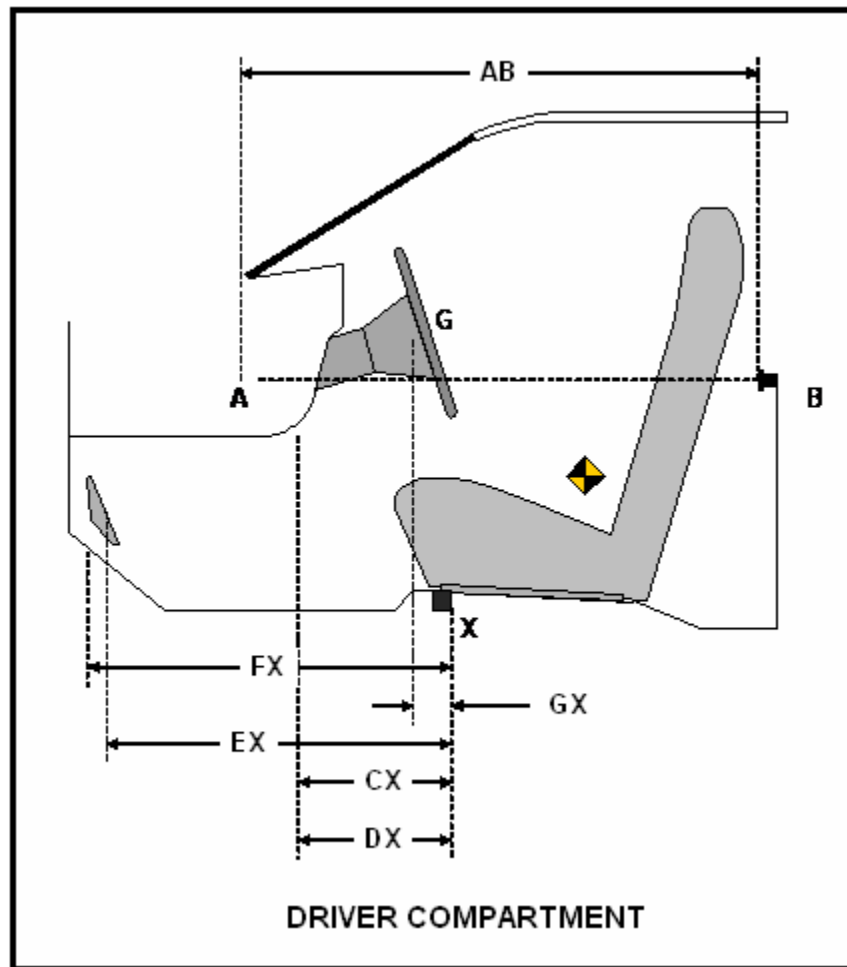
DATA SHEET NO. 14 ... (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV NHTSA No.: MB0517
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/22/10

DRIVER COMPARTMENT INTRUSION

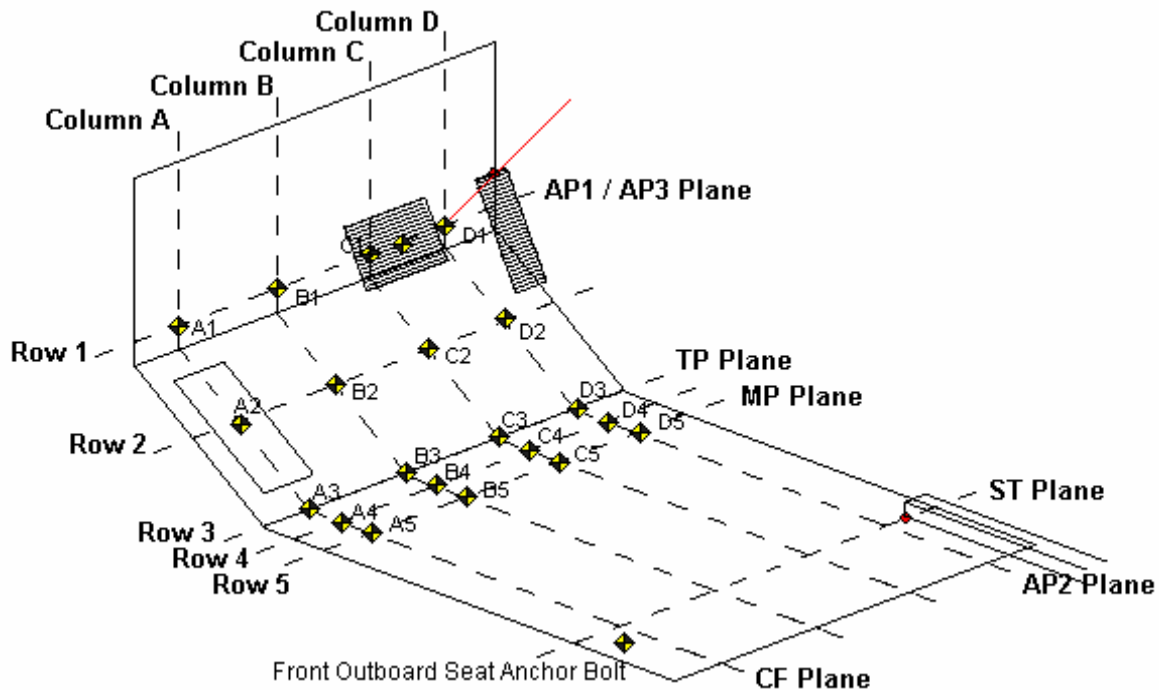
Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside Window Jam)	mm	862	857	5
CX	Left Knee Bolster to X	mm	290	283	7
DX	Right Knee Bolster to X	mm	291	291	0
EX	Brake Pedal to X	mm	530	511	19
FX	Foot Rest to X	mm	540	550	-10
GX	Center of Steering Wheel Hub to X	mm	60	118	-58

X = Front of Seat Track (Stationary)



DATA SHEET NO. 14 ... (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle:	2011 Kia Soul Plus 5-Door MPV	NHTSA No.:	MB0517
Test Program:	56 km/h Frontal Impact NCAP Test	Test Date:	10/22/10



AP1: Y-Z Plane passing through D1

AP2: X-Z Plane passing through D1

AP3: X-Y plane passing through D1

MP: Y-Z plane, halfway between the ST plane and AP1 plane

CF Plane: X-Z plane passes through center of footrest.

BP Plane: X-Z plane passes through center of brake pedal

TP Plane: Y-Z plane, intersection of BP Plane and the intersection of the toe pan and floorboard

Column A: intersection of vehicle and CF plane

Column D: Intersection of vehicle and AP2 plane

Row 1: intersection of the vehicle and the AP3 Plane

Row 3: intersection of the vehicle and TP plane

Row 5: intersection of the vehicle and MP plane

Row 2: evenly spaced between row 1 and 3

Row 4: evenly spaced between row 3 and 5

DATA SHEET NO. 14 ... (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV NHTSA No.: MB0517
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/22/10

DRIVER FLOORPAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	622	690	696	685	363	363	362	531	-259	-327	-334	-154
2	592	614	610	617	696	685	297	0	104	71	-313	-617
3	493	524	525	531	610	617	284	0	117	93	-241	-531
4	448	445	443	441	525	531	53	0	77	86	-390	-441
5	366	363	363	362	443	441	0	0	77	78	-363	-362

DRIVER FLOORPAN Y-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	14	-90	-179	-382	-83	-188	-388	-229	-97	-98	-209	153
2	18	-89	-182	-392	-179	-382	-18	0	-197	-293	164	392
3	15	-84	-184	-391	-182	-392	-361	0	-197	-308	-177	391
4	14	-83	-185	-390	-184	-391	-188	0	-198	-308	-3	390
5	15	-83	-188	-388	-185	-390	0	0	-200	-307	188	388

DRIVER FLOORPAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	92	-4	-16	-2	-80	-76	-86	99	-172	-72	-70	101
2	-20	-44	-46	-46	-16	-2	436	0	4	42	482	46
3	-33	-74	-73	-70	-46	-46	412	0	-13	28	485	70
4	-88	-80	-79	-84	-73	-70	599	0	15	10	678	84
5	-98	-80	-76	-86	-79	-84	0	0	19	-4	76	86

All measurements in millimeters

DATA SHEET NO. 14 ... (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV NHTSA No.: MB0517
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/22/10

PASSENGER FLOORPAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	705	709	681	617	60	-13	348	0	-645	-722	-333	-617
2	640	629	631	597	59	-21	16	0	-581	-650	-615	-597
3	554	549	550	548	63	-21	0	0	-491	-570	-550	-548
4	462	463	471	474	66	-21	0	0	-396	-484	-471	-474
5	391	385	383	386	62	-21	0	0	-329	-406	-383	-386

PASSENGER FLOORPAN Y-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	351	153	60	-13	13	59	428	0	-338	-94	368	13
2	360	159	59	-21	-46	-17	411	0	-406	-176	352	21
3	368	164	63	-21	-76	-73	0	0	-444	-237	-63	21
4	375	166	66	-21	-93	-94	0	0	-468	-260	-66	21
5	380	170	62	-21	-94	-100	0	0	-474	-270	-62	21

PASSENGER FLOORPAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	-3	-19	13	59	0	0	0	0	3	19	-13	-59
2	-47	-46	-46	-17	0	0	0	0	47	46	46	17
3	-73	-72	-76	-73	0	0	0	0	73	72	76	73
4	-92	-82	-93	-94	0	0	0	0	92	82	93	94
5	-90	-78	-94	-100	0	0	0	0	90	78	94	100

All measurements in millimeters

DATA SHEET NO. 15

SUMMARY OF FMVSS 212 AND 219 (PARTIAL) DATA

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV NHTSA No.: MB0517

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/22/10

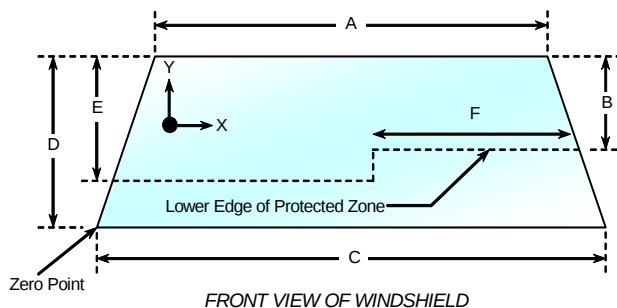
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with rubber plastic and rubber molding sealed with rubber cement.

The standard requires that the post-test retention measurement be a minimum of 75% of the pre-test total periphery measurement for vehicles not equipped with occupant passive restraints and 50% for each side of the windshield for vehicles which are equipped with occupant passive restraints.

Temperature of windshield molding during test: 21.1° C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	2101	2101	
Right Side	2101	2101	
Total	4202	4202	100%



Item	Units	Value
A	mm	1220
B	mm	405
C	mm	1482
D	mm	750
E	mm	511
F	mm	555

AREAS OF PROTECTED ZONE FAILURES

- A. Provide Coordinates of the area that the protected zone was penetrated more than 0.25 inches by a vehicle component other than one that is normally in contact with the windshield.

X	Y

- B. Provide coordinates of the area beneath the protected zone that the inner surface of the windshield was penetrated by a vehicle component.

X	Y

DATA SHEET NO. 16

FMVSS 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV NHTSA No.: MB0517
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/22/10

FMVSS 301 FUEL SYSTEM INTEGRITY DATA

Temperature at Time of Impact: 23.9° Test Time: 12:52 PM

Stoddard Solvent Spillage Measurements

- 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: No spillage occurred

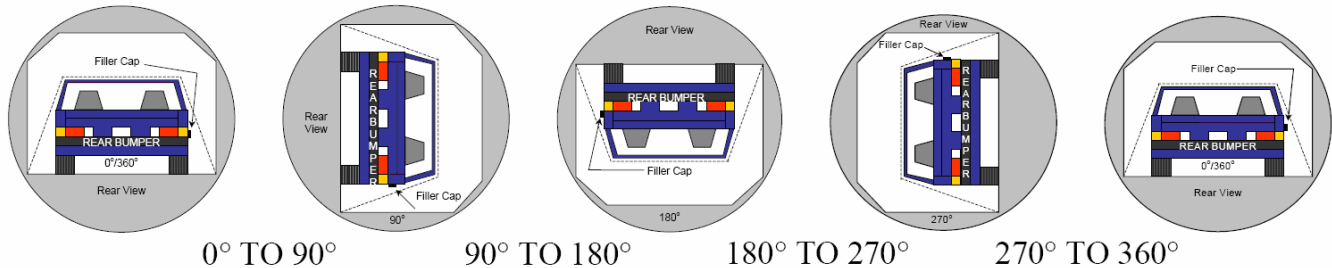
DATA SHEET NO. 17
FMVSS 301 STATIC ROLLOVER

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV

NHTSA No.: MB0517

Test Program: 56 km/h Frontal Impact NCAP Test

Test Date: 10/22/10



1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard solvent spillage: No spillage occurred

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	83	300	383
90° To 180°	83	300	383
180° To 270°	76	300	376
270° To 360°	79	300	379

FMVSS 301 SPILLAGE TABLE

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

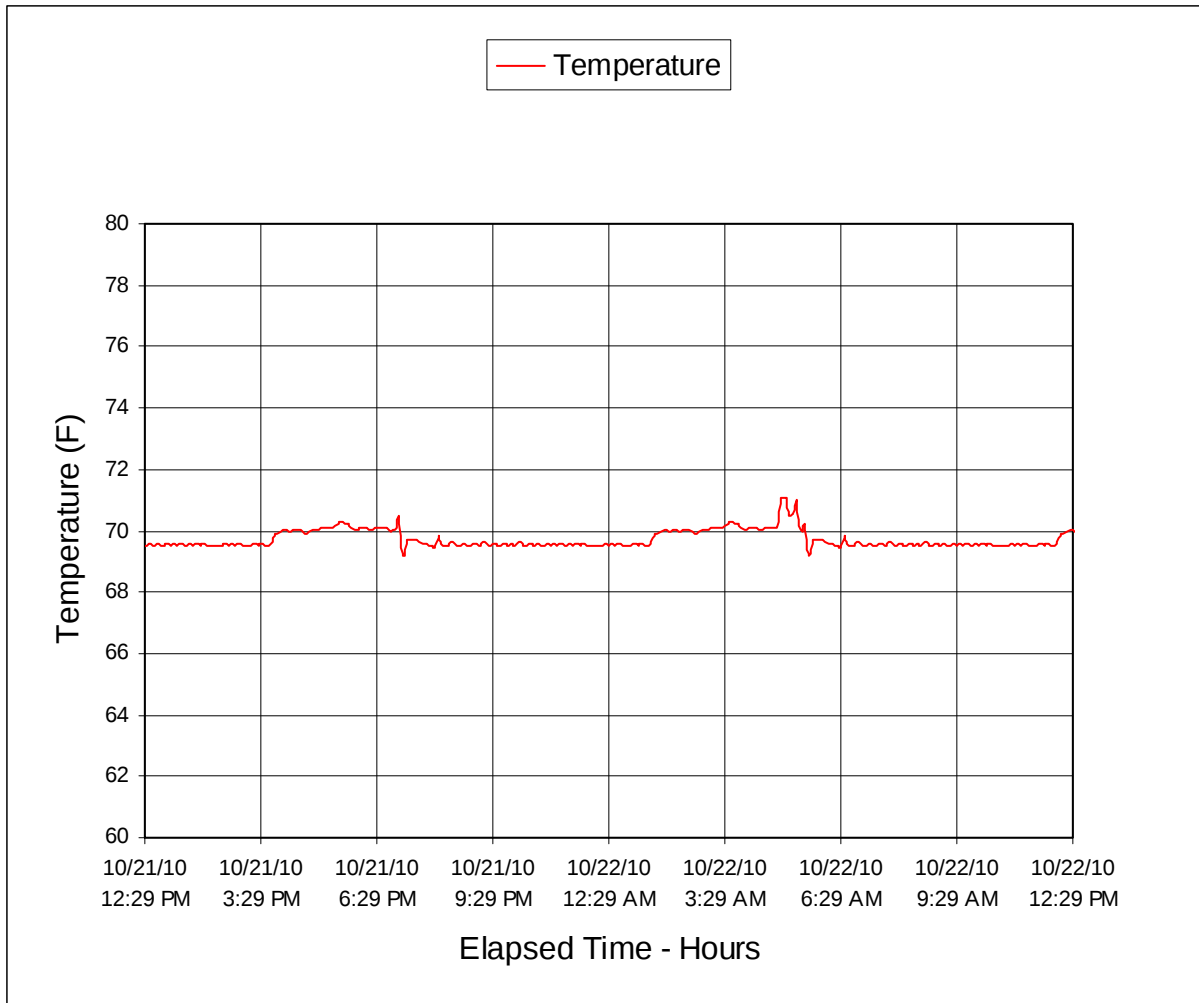
SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 18

DUMMY / VEHICLE TEMPERATURE STABILIZATION CHART

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV NHTSA No.: MB0517
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/22/10



APPENDIX A
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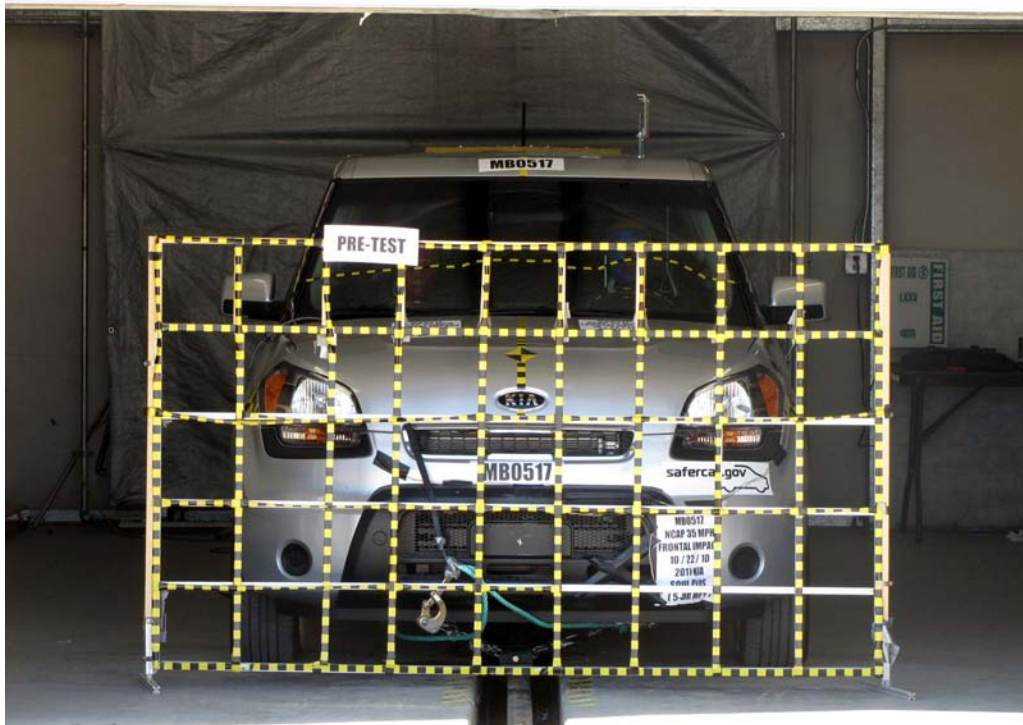


FIGURE 1. Load Cell Location



FIGURE 2. Load Cell Wall



FIGURE 3. Manufacturer's Label



FIGURE 4. Tire Placard



FIGURE 5. Right Front 3-4 View as Delivered



FIGURE 6. Left Rear 3-4 View as Delivered



FIGURE 7. Pre-Test Front View of Test Vehicle



FIGURE 8. Post-Test Front View of Test Vehicle



FIGURE 9. Pre-Test Left View of Test Vehicle



FIGURE 10. Post-Test Left View of Test Vehicle



FIGURE 11. Pre-Test Right View of Test Vehicle



FIGURE 12. Post-Test Right View of Test Vehicle



FIGURE 13. Pre-Test Right Front $\frac{3}{4}$ View



FIGURE 14. Post-Test Right Front $\frac{3}{4}$ View



FIGURE 15. Pre-Test Left Rear $\frac{3}{4}$ View



FIGURE 16. Post-Test Left Rear $\frac{3}{4}$ View



FIGURE 17. Pre-Test Windshield View



FIGURE 18. Post-Test Windshield View



FIGURE 19. Pre-Test Engine Compartment View

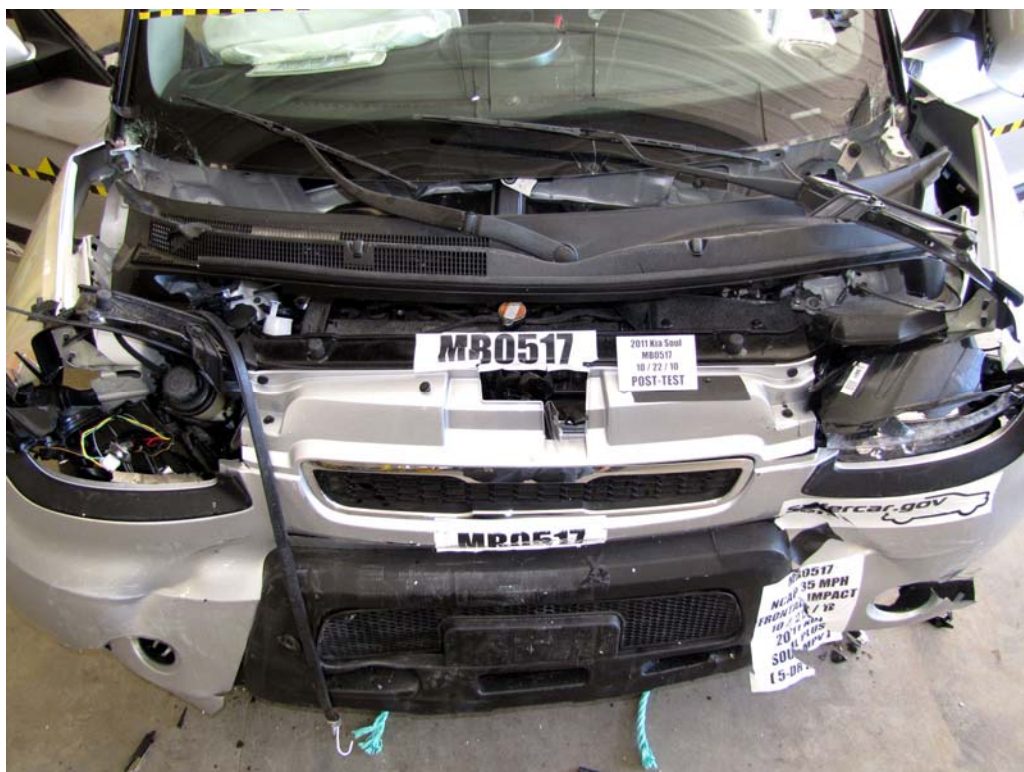


FIGURE 20. Post-Test Engine Compartment View



FIGURE 21. Pre-Test Fuel Filler Cap View



FIGURE 22. Post-Test Fuel Filler Cap View

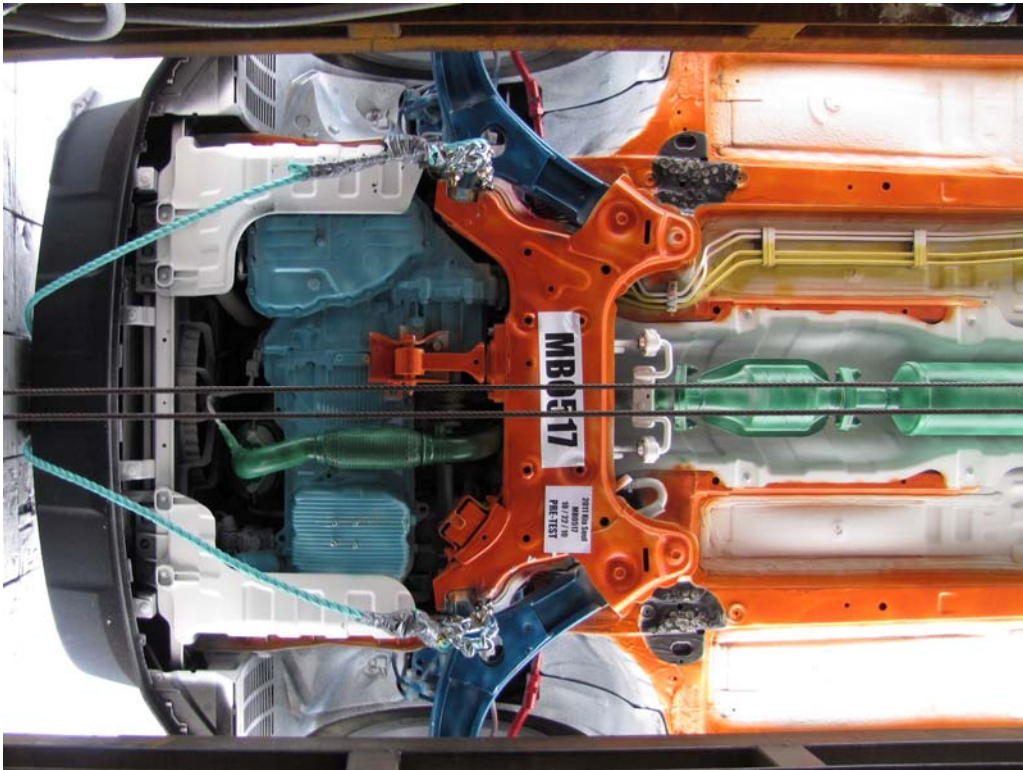


FIGURE 23. Pre-Test Front Underbody View

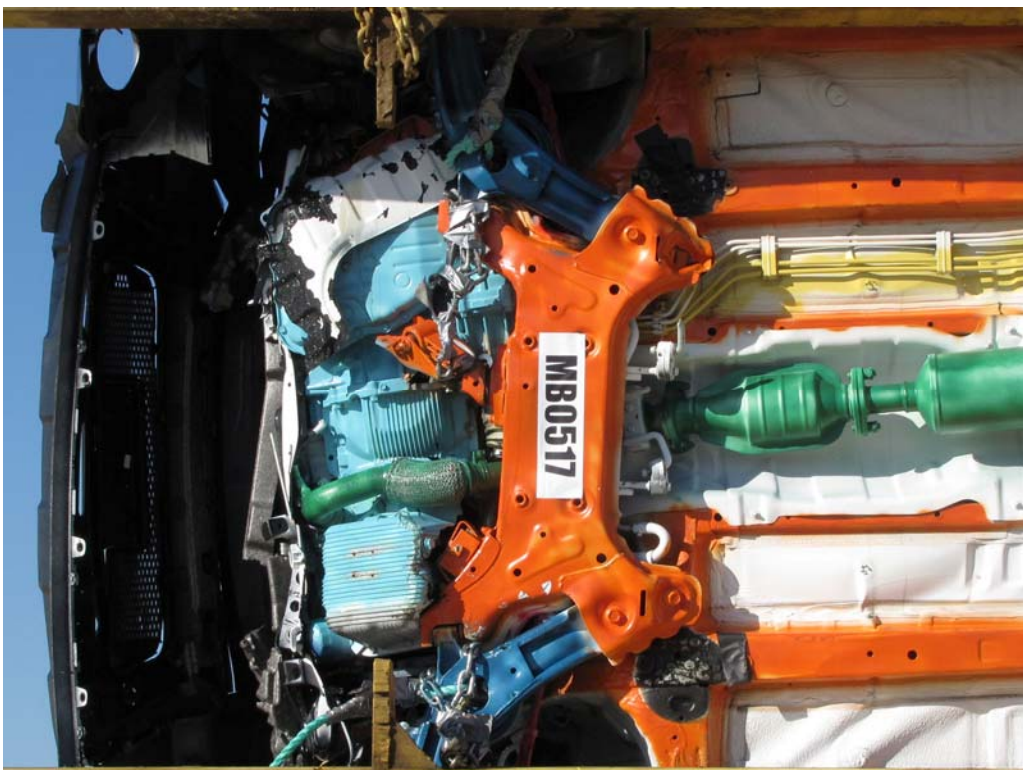


FIGURE 24. Post-Test Front Underbody View

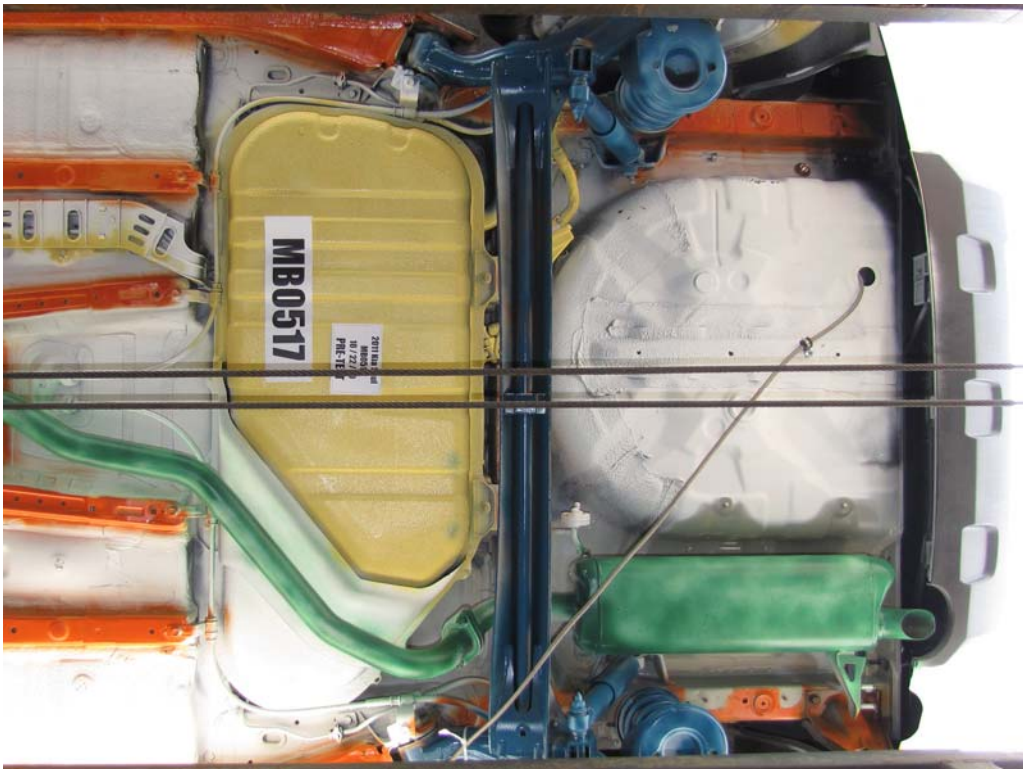


FIGURE 25. Pre-Test Rear Underbody View



FIGURE 26. Post-Test Rear Underbody View



FIGURE 27. Pre-Test Dummy Cable Routing



FIGURE 28. Post-Test Dummy Cable Routing



FIGURE 29. Pre-Test Driver Dummy Front View



FIGURE 30. Post-Test Driver Dummy Front View



FIGURE 31. Pre-Test Driver Dummy Window View



FIGURE 32. Post-Test Driver Dummy Window View



FIGURE 33. Pre-Test Driver Dummy and Vehicle Interior View



FIGURE 34. Post-Test Driver Dummy and Vehicle Interior View



FIGURE 35. Pre-Test Driver's Seat Fore-Aft Markings



FIGURE 36. Post-Test Driver's Seat Fore-Aft Markings



FIGURE 37. Pre-Test Driver Dummy Feet



FIGURE 38. Post-Test Driver Dummy Feet



FIGURE 39. Pre-Test Driver's Side Knee Bolster



FIGURE 40. Post-Test Driver's Side Knee Bolster



FIGURE 41. Pre-Test Driver's Side Floorpan



FIGURE 42. Post-Test Driver's Side Floorpan



FIGURE 43. Post-Test Driver Dummy Contact With Airbag



FIGURE 43a. Post-Test Driver Dummy Contact With Headrest



FIGURE 43b. Post-Test Driver Dummy Contact With Knee Bolster



FIGURE 44. Pre-Test View of Steering Column Shear Capsule



FIGURE 45. Post-Test View of Steering Column Shear Capsule



FIGURE 46. Pre-Test Passenger Dummy Front View



FIGURE 47. Post-Test Passenger Dummy Front View



FIGURE 48. Pre-Test Passenger Dummy Window View



FIGURE 49. Post-Test Passenger Dummy Window View



FIGURE 50. Pre-Test Passenger Dummy and Vehicle Interior View



FIGURE 51. Post-Test Passenger Dummy and Vehicle Interior View



FIGURE 52. Pre-Test Passenger's Seat Fore-Aft Markings



FIGURE 53. Post-Test Passenger's Seat Fore-Aft Markings

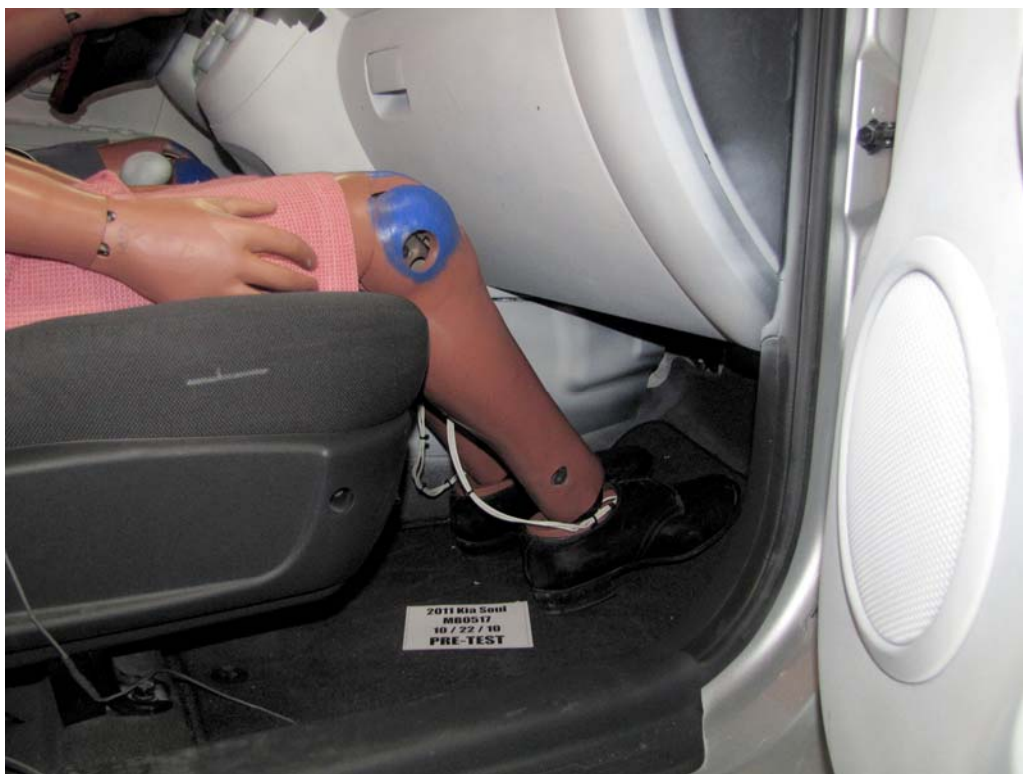


FIGURE 54. Pre-Test Passenger Dummy Feet



FIGURE 55. Post-Test Passenger Dummy Feet



FIGURE 56. Pre-Test Passenger's Side Knee Bolster



FIGURE 57. Post-Test Passenger's Side Knee Bolster



FIGURE 58. Pre-Test Passenger's Side Floorpan



FIGURE 59. Post-Test Passenger's Side Floorpan



FIGURE 60. Post-Test Passenger Dummy Contact With Airbag



FIGURE 60a. Post-Test Passenger Dummy Contact With Headrest



FIGURE 60b. Post-Test Passenger Dummy Contact With Knee Bolster

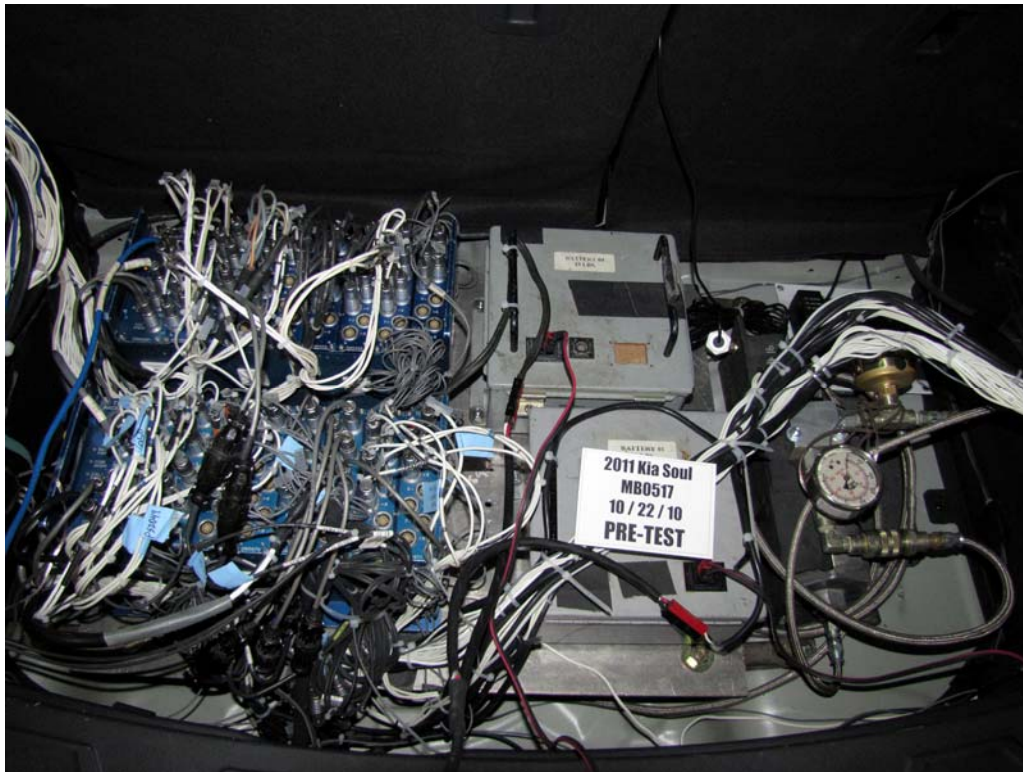


FIGURE 61. Pre-Test of Ballast Installed in Vehicle

Photograph Not Applicable
No Stoddard
Solvent Spillage

FIGURE 62. Post-Test Stoddard Solvent Spillage Location



FIGURE 63. Post-Test Speed Trap Read Out

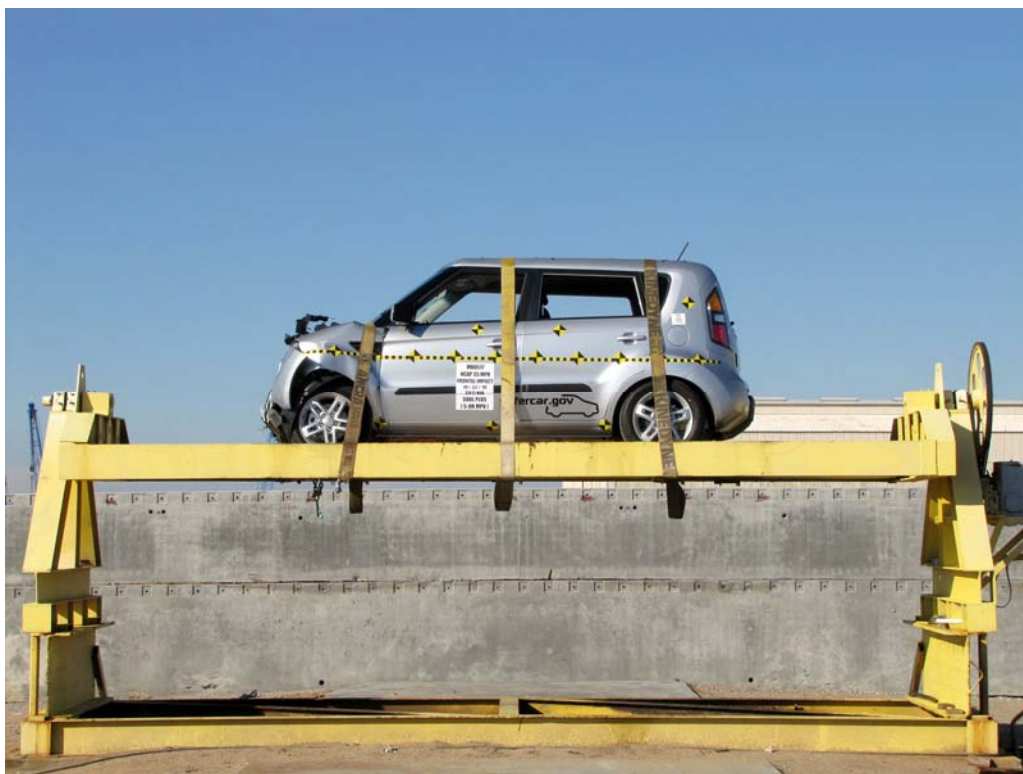


FIGURE 64. Vehicle at 0 Degrees on Static Rollover Device

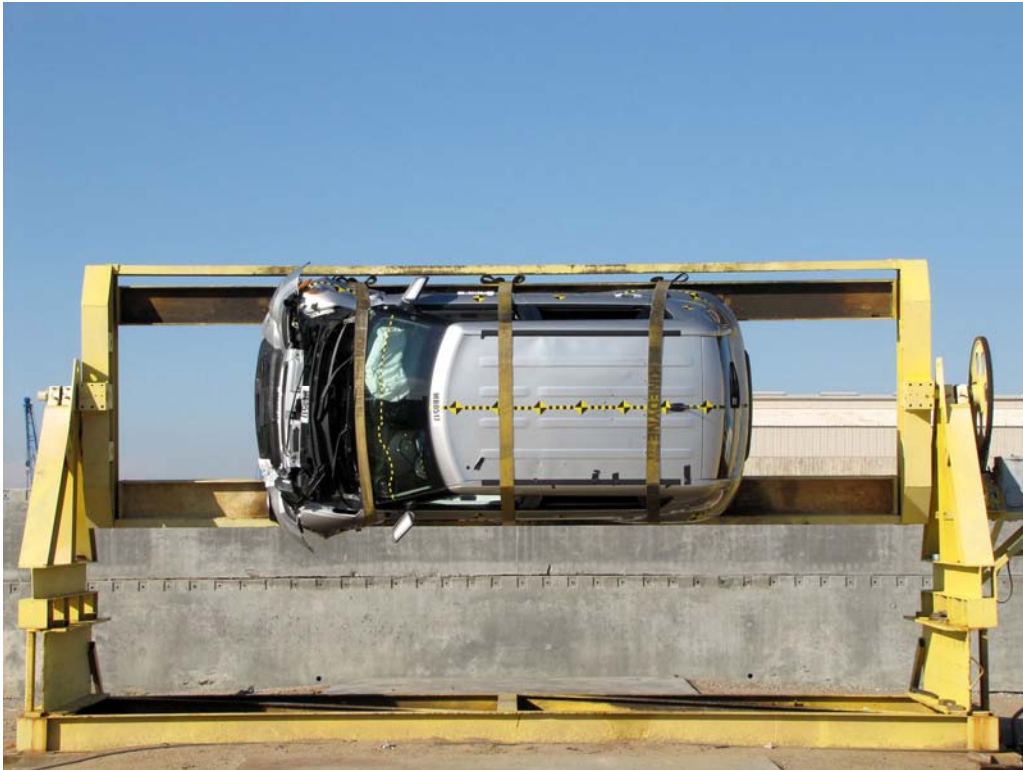


FIGURE 65. Vehicle at 90 Degrees on Static Rollover Device



FIGURE 66. Vehicle at 180 Degrees on Static Rollover Device



FIGURE 67. Vehicle at 270 Degrees on Static Rollover Device



FIGURE 68. Vehicle at 360 Degrees on Static Rollover Device



FIGURE 69. Impact Event

KIA 2011 B2922 KIA SOUL PLUS MODEL YEAR MODEL BRIGHT SILVER/BLK EXTERIOR INTERIOR COLOR KNDJT2A287705216 G4GCAH49 VIN CHASSIS NUMBER PORT HUENEME TRUCK NAME OF BUYER MAKE OF TRANSPORTATION		ROAD TO: SHIP TO: CA186 CA186 CAR PROS KIA 21243 S. AVALON BLVD. CARSON CA 90745	
STANDARD FEATURES MECHANICAL 2.0L 16-Valve DOHC CVT 4-Cylinder Engine 4-Speed Automatic Transmission Independent Front Suspension Front Stabilizer Bar Torsion Beam Rear Suspension Rack and Pinion Steering P205-55R16 Tires, Alloy Wheels Front and Rear Disc Brakes SAFETY Anti-Lock Brake System (ABS) w/Brake Assist (BAS) Electronic Brake-force Distribution (EBD) Electronic Stability Control (ESC) Traction Control System (TCS) Dual Front Advanced Airbags Front Seat-Mounted Side Airbags Full-Length Side Curtain Airbags Front Active Headrests Tire Pressure Monitoring System (TPMS) Front Height Adjustable Seatbelt Anchors Front Seat Belt Pretensioners with Force Limiters Rear Three-Point Seatbelts (3) Lower Anchors and Tethers for Children (LATCH) INTERIOR Air Conditioning, Trip Computer AM/FM/CD/MP3 Audio w/8 Speakers Sirius Satellite Radio w/3-month complimentary subscription included** Cruise Control, Bluetooth Wireless Technology USB and Auxiliary Input Jacks Power Windows, Door Locks, Outside Mirrors Remote Keyless Entry w/Folding Key Cloth Seat Trim, Tilt Steering Column 60/40 Split Folding Rear Seats Dual Front Cupholders, Bottle Holders in Doors Tinted Glass, Tachometer EXTERIOR Black Front Fender Garnish Black Body Side Molding Variable Intermittent Front Wipers Rear Wiper w/Washer, Roof-Mounted Antenna Solar Glass, Privacy Glass LIMITED POWERTRAIN WARRANTY 10 YEARS/100,000 MILES 8 YEARS/80,000 MILES 24-HOUR ROADSIDE ASSISTANCE **Ask dealer for details		MANUFACTURER'S SUGGESTED RETAIL PRICE \$16,495.00 ADDITIONAL INSTALLED EQUIPMENT: (In addition to or in place of standard features) Carpeted Floor Mats \$95.00 MSRP INCLUDING OPTIONS \$16,590.00 ISLAND FREIGHT AND HANDLING \$695.00 TOTAL MANUFACTURER'S SUGGESTED RETAIL PRICE \$17,285.00 Manufacturer's suggested retail price includes manufacturer's recommended pre-delivery service. License and title fees, state and local taxes and other dealer installed options and accessories are not included in the manufacturer's suggested retail price.	
EPA Fuel Economy Estimates These estimates reflect new EPA methods beginning with 2008 models. CITY MPG 24 Expected range for most drivers 19 to 29 MPG Estimated Annual Fuel Cost \$1502.00 Based on 15,000 miles at \$2.00 per gallon Contained Fuel Economy This Vehicle 19 to 26 to 34 Highway MPG 30 Expected range for most drivers 24 to 36 MPG Your actual mileage will vary depending on how you drive and maintain your vehicle. See the FREE Fuel Economy Guide at dealers or www.fueleconomy.gov		GOVERNMENT SAFETY RATINGS Frontal Crash Driver Passenger Not Rated Not Rated Star ratings based on a 5-star, 4-star, 3-star, 2-star, 1-star, or 0-star rating. Frontal ratings should ONLY be compared to other vehicles of similar size and weight. Side Crash Front seat Not Rated Not Rated Rear seat Not Rated Not Rated Rollover ★★★★★ Star ratings based on the risk of rollover in a single vehicle crash. Star ratings range from 1 to 5 stars (★★★★★) with 5 being the highest. Source: National Highway Traffic Safety Administration (NHTSA) www.safercar.gov or 1-888-327-4236	
Environmental Performance Protect the environment, choose vehicles with higher scores: Global Warming Score Smog Score 1 2 3 4 5 1 2 3 4 5 New vehicle New vehicle Using alternative fuels may improve scores. See www.DriveClean.ca.gov Other manufacturers and a variety of consumer groups have submitted and scored. Scores are determined by the California Air Resources Board based on		PARTS CONTENT INFORMATION FOR VEHICLES IN THIS CAR LINE U.S./CANADIAN PARTS CONTENT: 3% MAJOR SOURCES OF FOREIGN PARTS: KOREA-92% NOTE: PARTS CONTENT DOES NOT INCLUDE FINAL ASSEMBLY DISTRIBUTION, OR OTHER NON-PARTS COSTS. FOR THIS VEHICLE FINAL ASSEMBLY POINT: KOREA COUNTRY OF ORIGIN ENGINE: KOREA TRANSMISSION: KOREA	
TOTAL ADDITIONAL WEIGHT: 13.5 			

FIGURE 70. Monroney Label Photograph

APPENDIX B
DUMMY RESPONSE DATA TRACES

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6	Driver Chest X Acceleration vs. Time Primary	B-3
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9	Driver Chest Resultant Acceleration vs. Time Primary	B-3
10	Driver Upper Neck Force X vs. Time Primary	B-4
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23	Passenger Chest Z Acceleration vs. Time Primary	B-8
24	Passenger Chest Resultant Acceleration vs. Time Primary	B-8
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26	Passenger Upper Neck Force Z vs. Time Primary	B-9
27	Passenger Upper Neck Moment Y vs. Time Primary	B-9
28	Passenger Nij vs. Time Primary	B-9
29	Passenger Left Femur Force vs. Time	B-10
30	Passenger Right Femur Force vs. Time	B-10

The following additional dummy and vehicle response data can be found in the R&D section of the NHTSA website at www.nhtsa.dot.gov

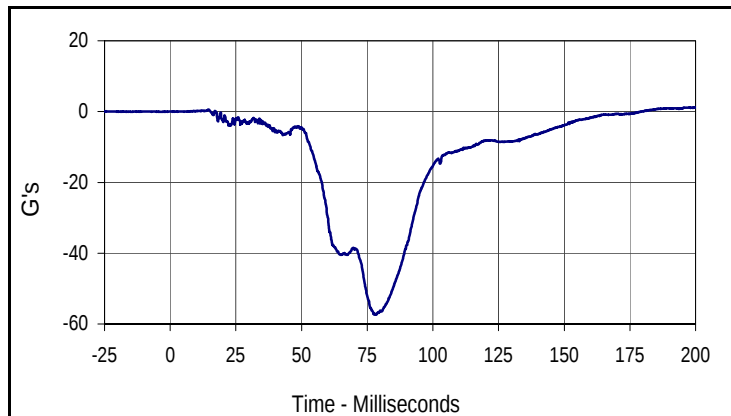
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Driver Head Y Acceleration Redundant
Driver Head Z Acceleration Redundant
Driver Upper Neck Force Y
Driver Upper Neck Moment X
Driver Upper Neck Moment Z
Driver Chest X Acceleration Redundant
Driver Chest Y Acceleration Redundant
Driver Chest Z Acceleration Redundant
Driver Pelvis X
Driver Pelvis Y
Driver Pelvis Z
Driver Shoulder Belt Force
Driver Lap Belt Force
Driver Left Upper Tibia Moment X
Driver Left Upper Tibia Moment Y
Driver Left Upper Tibia Force Z
Driver Left Lower Tibia Moment X
Driver Left Lower Tibia Moment Y
Driver Left Lower Tibia Force Z
Driver Right Upper Tibia Moment X
Driver Right Upper Tibia Moment Y
Driver Right Upper Tibia Force Z
Driver Right Lower Tibia Moment X
Driver Right Lower Tibia Moment Y
Driver Right Lower Tibia Force Z
Driver Left Foot Fore Z
Driver Left Foot Aft X
Driver Left Foot Aft Z
Driver Right Foot Fore Z
Driver Right Foot Aft X
Driver Right Foot Aft Z
Passenger Head X Acceleration Redundant

Passenger Head Y Acceleration Redundant
Passenger Head Z Acceleration Redundant
Passenger Upper Neck Force X
Passenger Upper Neck Force Z
Passenger Upper Neck Moment Y
Passenger Chest X Acceleration Redundant
Passenger Chest Y Acceleration Redundant
Passenger Chest Z Acceleration Redundant
Passenger Pelvis X
Passenger Pelvis Y
Passenger Pelvis Z
Passenger Shoulder Belt Force
Passenger Lap Belt Force
Passenger Left Upper Tibia Moment X
Passenger Left Upper Tibia Moment Y
Passenger Left Upper Tibia Force Z
Passenger Left Lower Tibia Moment X
Passenger Left Lower Tibia Moment Y
Passenger Left Lower Tibia Force Z
Passenger Right Upper Tibia Moment X
Passenger Right Upper Tibia Moment Y
Passenger Right Upper Tibia Force Z
Passenger Right Lower Tibia Moment X
Passenger Right Lower Tibia Moment Y
Passenger Right Lower Tibia Force Z
Passenger Left Foot Fore Z
Passenger Left Foot Aft X
Passenger Left Foot Aft Z
Passenger Right Foot Fore Z
Passenger Right Foot Aft X
Passenger Right Foot Aft Z
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Left Rear Seat Crossmember Z
Right Rear Seat Crossmember X
Right Rear Seat Crossmember Z
Vehicle Engine Top X

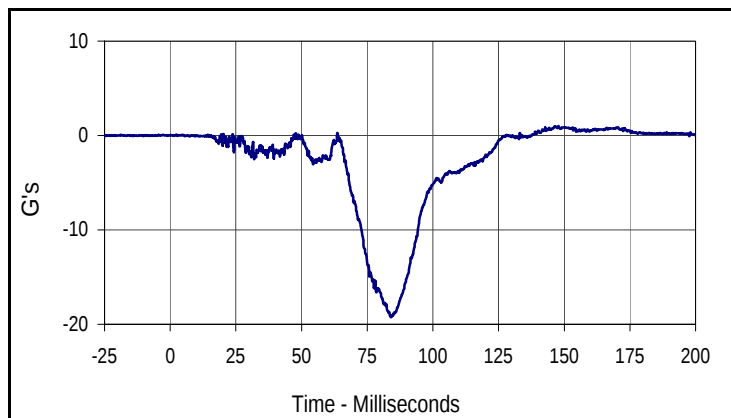
Vehicle Engine Bottom X
Vehicle Left Brake Caliper X
Vehicle Right Brake Caliper X
Load Cell Barrier A1-A9
Load Cell Barrier B1-A9
Load Cell Barrier C1-A9
Load Cell Barrier D1-A9

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV
 Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test

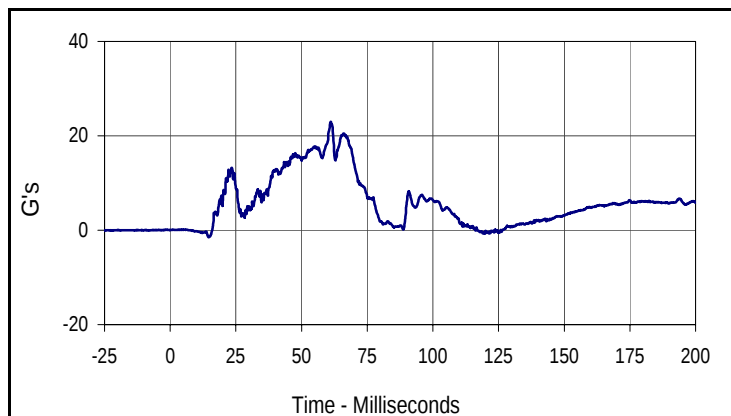
Test Date: 10/22/10
 NHTSA No.: MB0517



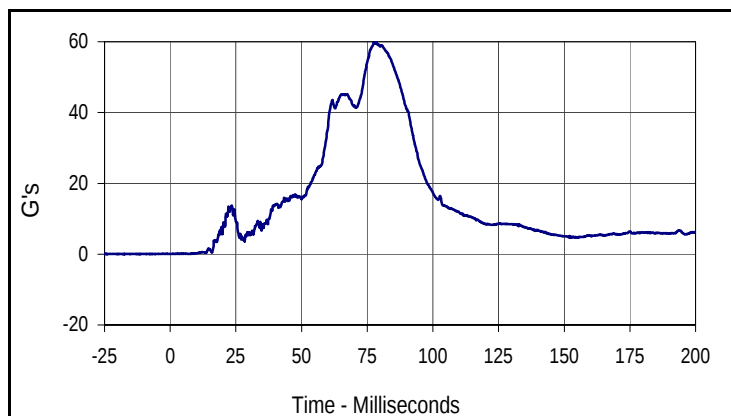
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Max	Time	Min	Time
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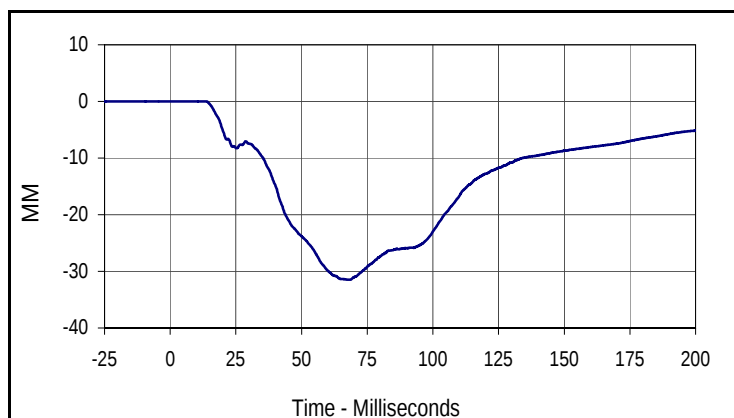
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Max	Time	Min	Time
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Curve Description			
Driver Head Resultant Acceleration Primary			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
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Test Vehicle: 2011 Kia Soul Plus 5-Door MPV
 Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test

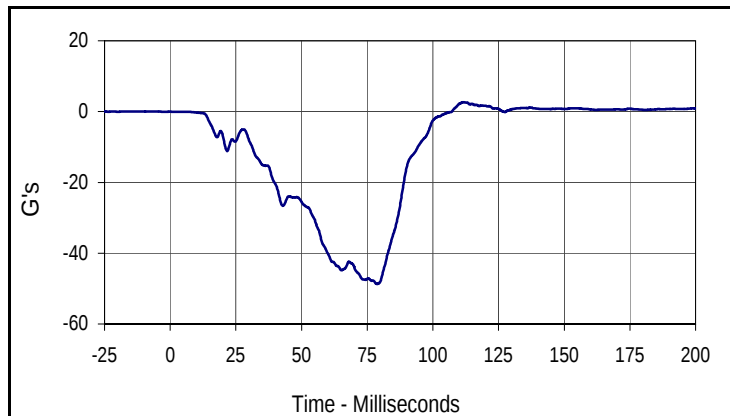
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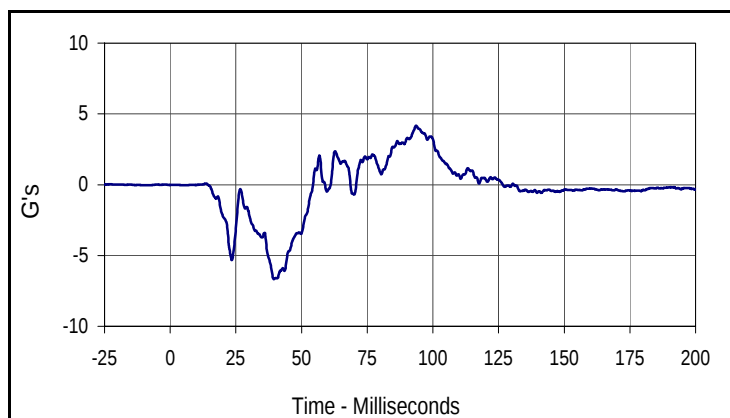
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Test Vehicle: 2011 Kia Soul Plus 5-Door MPV
 Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test

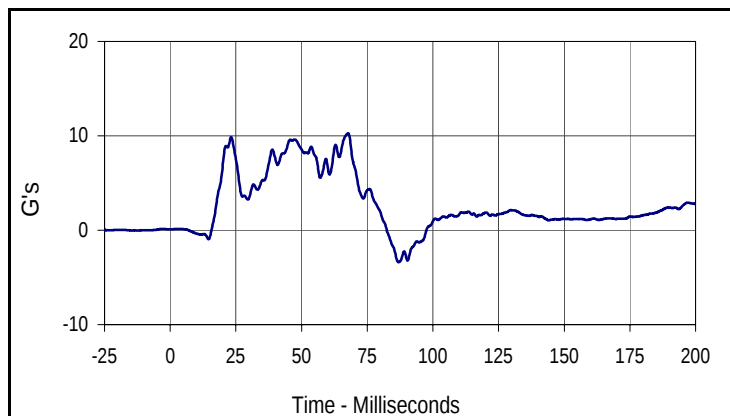
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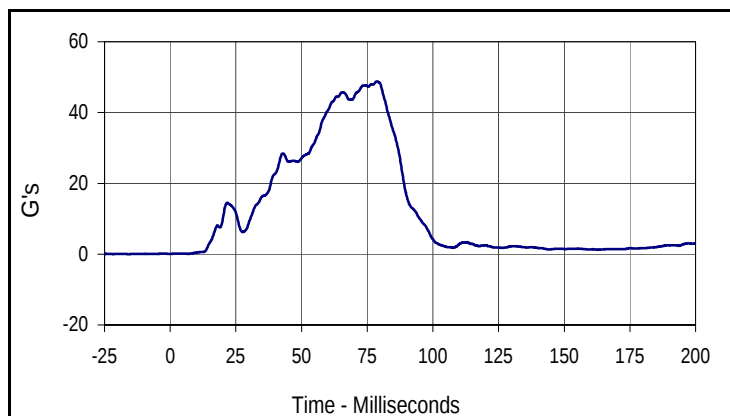
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Curve Description			
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014	FIL	180	G's
Max	Time	Min	Time
4.2	93.6	-6.7	39.5



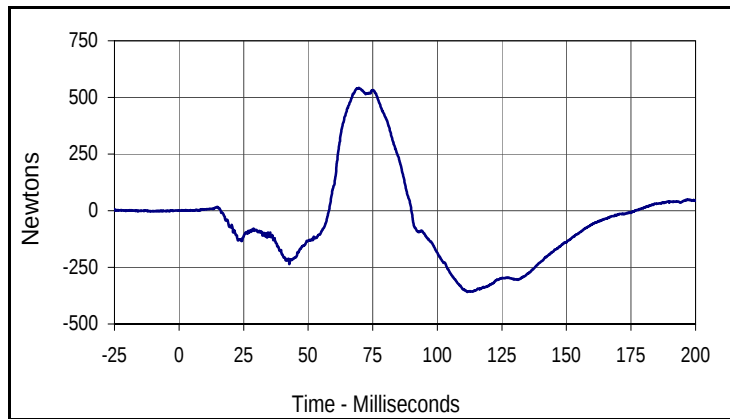
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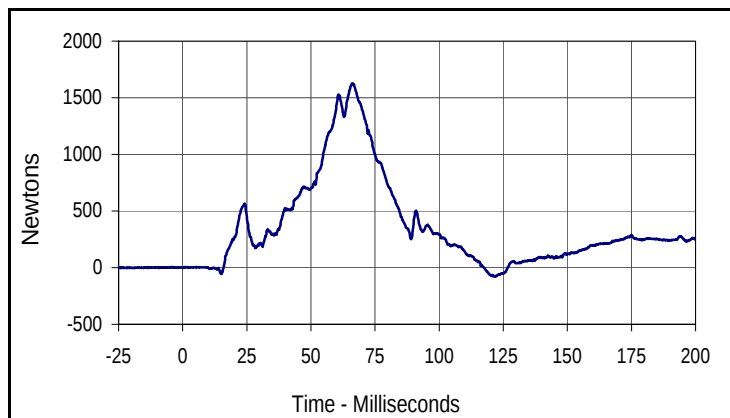
Curve Description			
Driver Chest Resultant Acceleration Primary			
CURNO	Type	SAE Class	Units
013	RES	180	G's
Max	Time	Min	Time
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Test Vehicle: 2011 Kia Soul Plus 5-Door MPV
 Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test

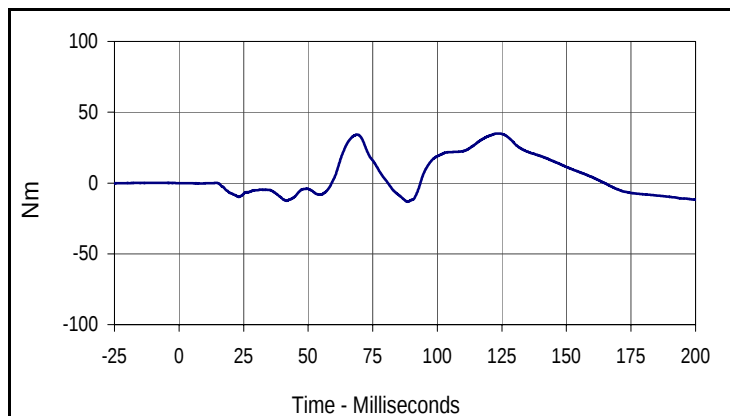
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 NHTSA No.: MB0517



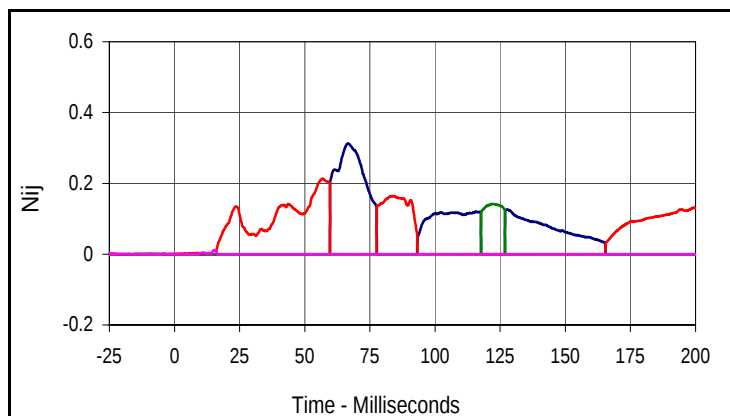
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007	FIL	1000	Newtons
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541.8	69.6	-358.7	111.5



Curve Description			
Driver Upper Neck Force Z			
CURNO	Type	SAE Class	Units
009	FIL	1000	Newtons
Max	Time	Min	Time
1626.5	66.1	-78.5	121.7



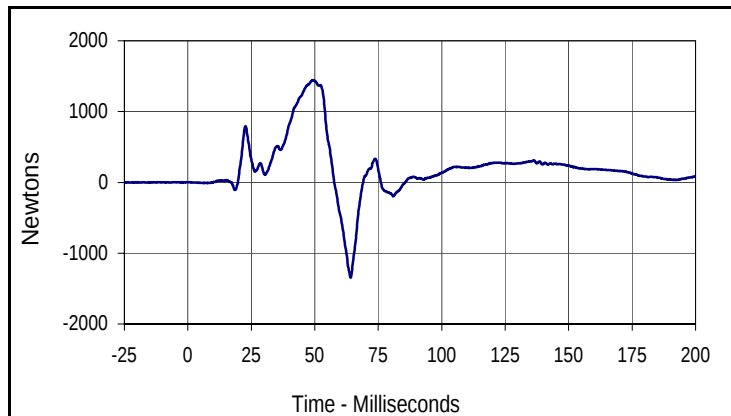
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011	FIL	600	Nm
Max	Time	Min	Time
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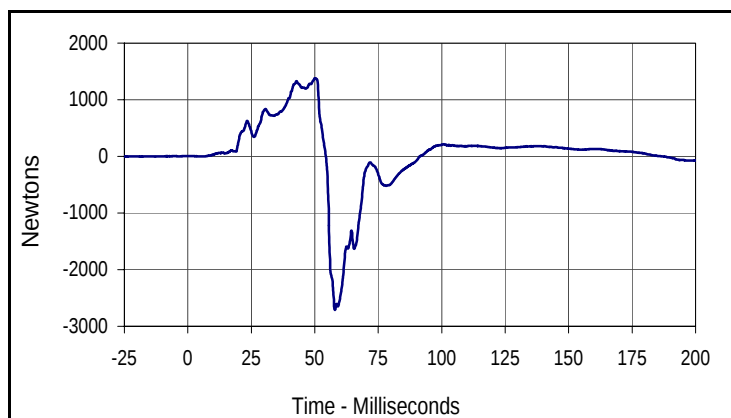
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Driver Nij			
Units	Type	Max	Time
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Nte	FIL	0.21	56.9
Units	Type	Max	Time
Ncf	FIL	0.14	122.4
Units	Type	Max	Time
Nce	FIL	0.10	295.1

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV
 Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test

Test Date: 10/22/10
 NHTSA No.: MB0517



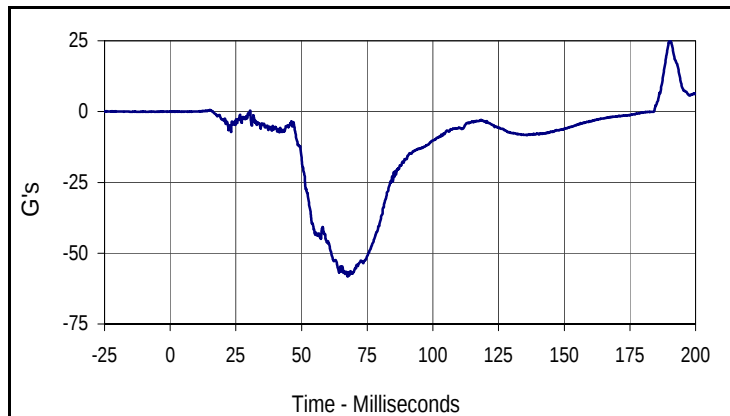
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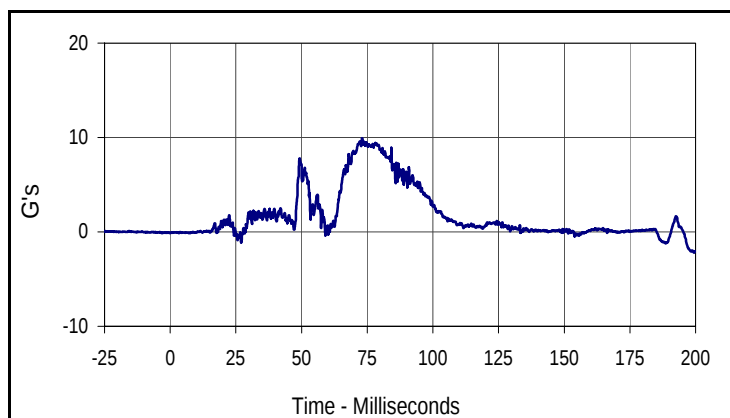
Curve Description			
Driver Right Femur Force Z			
CURNO	Type	SAE Class	Units
024	FIL	600	Newtons
Max	Time	Min	Time
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Test Vehicle: 2011 Kia Soul Plus 5-Door MPV
 Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test

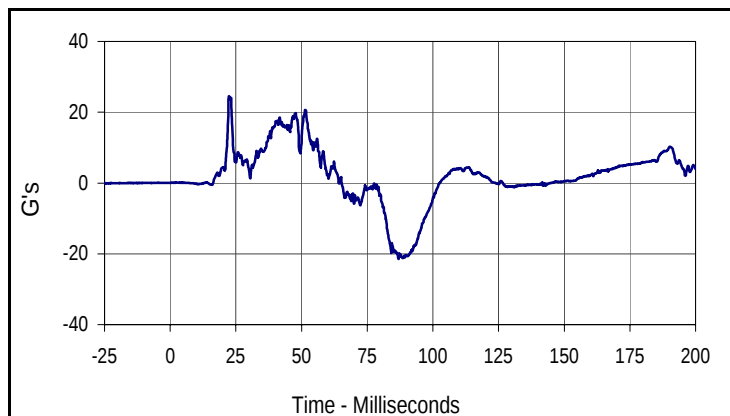
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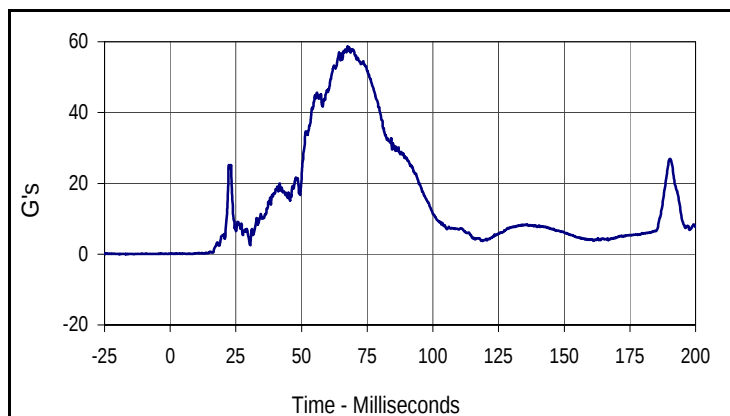
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Passenger Head Acceleration X Primary			
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045	FIL	1000	G's
Max	Time	Min	Time
24.9	190.3	-58.3	67.6



Curve Description			
Passenger Head Acceleration Y Primary			
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046	FIL	1000	G's
Max	Time	Min	Time
9.9	73.1	-2.2	199.3



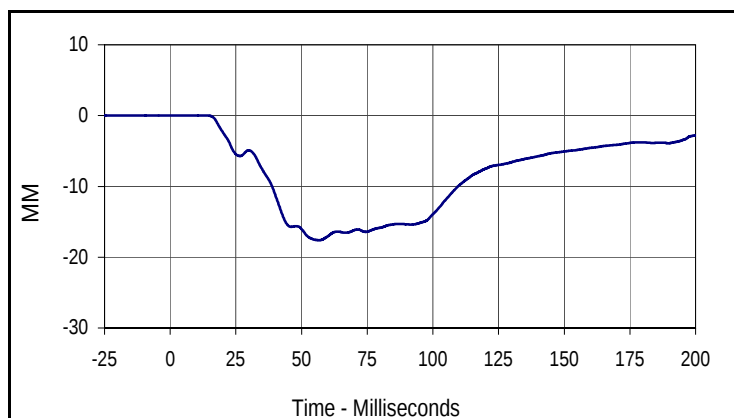
Curve Description			
Passenger Head Acceleration Z Primary			
CURNO	Type	SAE Class	Units
047	FIL	1000	G's
Max	Time	Min	Time
24.6	22.4	-21.5	86.9



Curve Description			
Passenger Head Resultant Acceleration Primary			
CURNO	Type	SAE Class	Units
045	RES	1000	G's
Max	Time	Min	Time
58.7	67.6	0.0	8.7

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV
 Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test

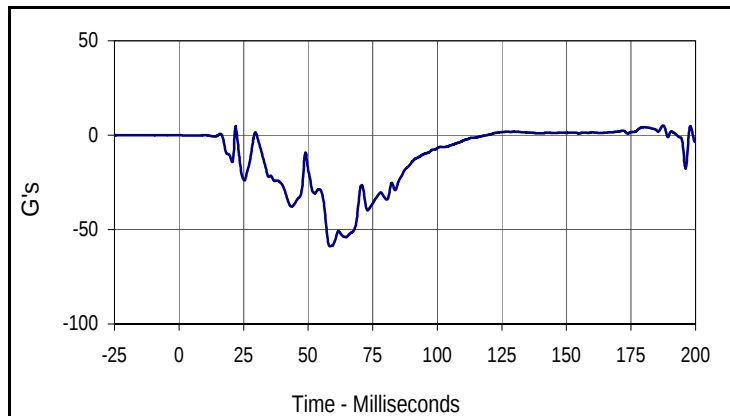
Test Date: 10/22/10
 NHTSA No.: MB0517



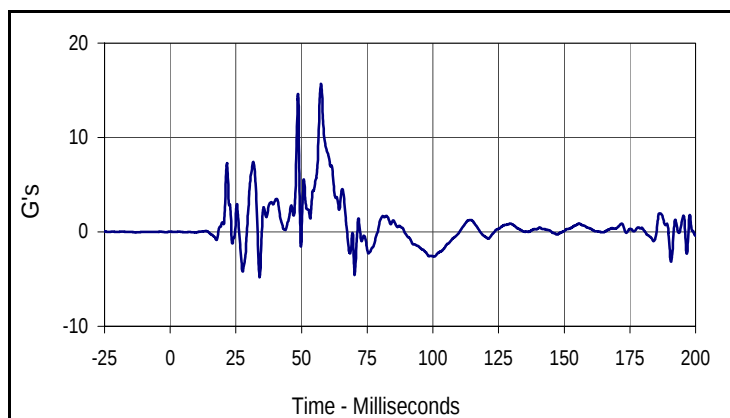
Curve Description			
Passenger Chest Deflection			
CURNO	Type	SAE Class	Units
063	FIL	180	MM
Max	Time	Min	Time
0.0	13.9	-17.6	56.7

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV
 Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test

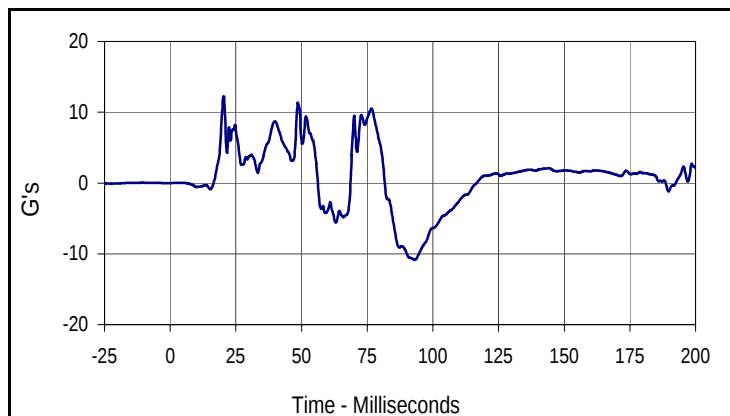
Test Date: 10/22/10
 NHTSA No.: MB0517



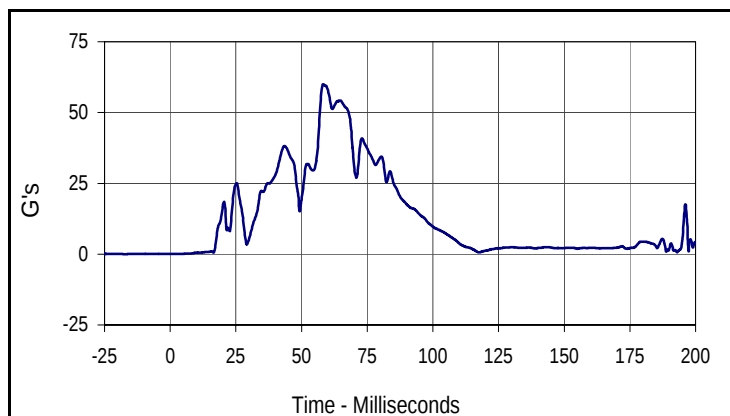
Curve Description			
Passenger Chest Acceleration X Primary			
CURNO	Type	SAE Class	Units
057	FIL	180	G's
Max	Time	Min	Time
5.2	187.4	-58.9	58.4



Curve Description			
Passenger Chest Acceleration Y Primary			
CURNO	Type	SAE Class	Units
058	FIL	180	G's
Max	Time	Min	Time
15.7	57.4	-4.8	34.0



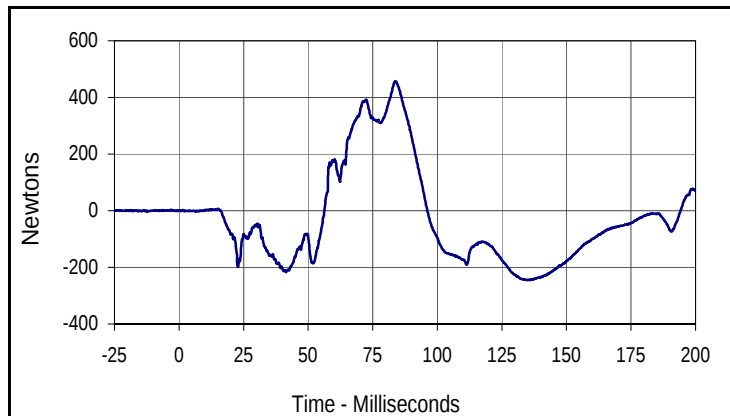
Curve Description			
Passenger Chest Acceleration Z Primary			
CURNO	Type	SAE Class	Units
059	FIL	180	G's
Max	Time	Min	Time
12.3	20.3	-10.9	93.1



Curve Description			
Passenger Chest Resultant Acceleration Primary			
CURNO	Type	SAE Class	Units
057	RES	180	G's
Max	Time	Min	Time
60.0	58.2	0.1	0.5

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV
 Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test

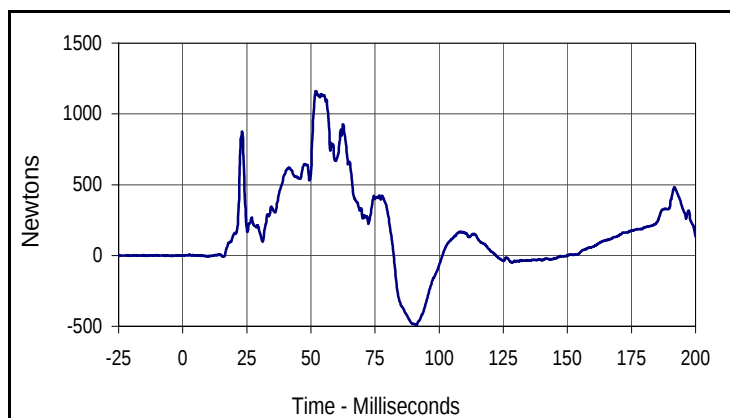
Test Date: 10/22/10
 NHTSA No.: MB0517



Curve Description

Passenger Upper Neck Force X

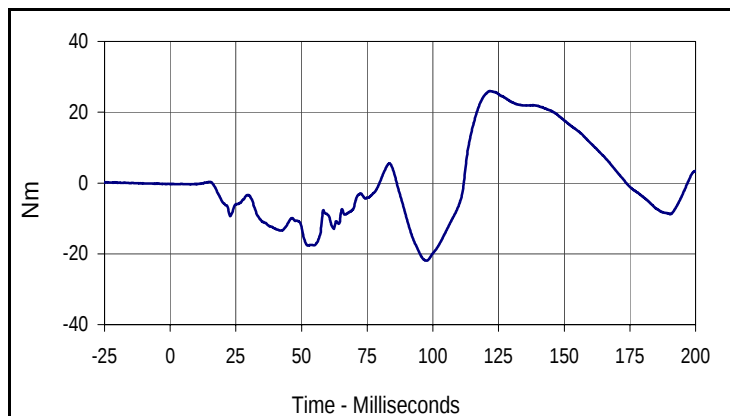
CURNO	Type	SAE Class	Units
051	FIL	1000	Newtons
Max	Time	Min	Time
457.7	83.7	-245.1	134.9



Curve Description

Passenger Upper Neck Force Z

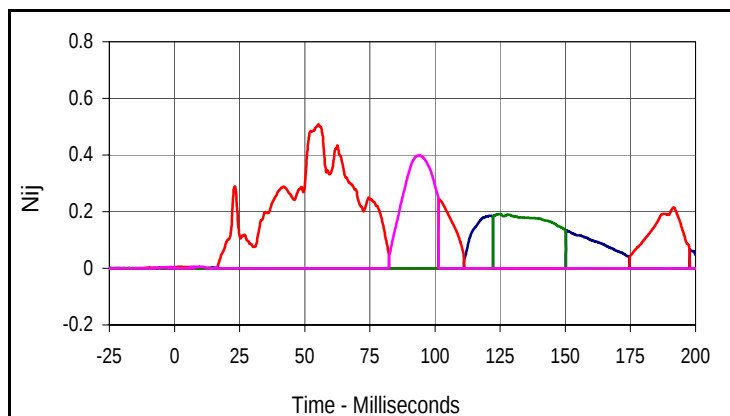
CURNO	Type	SAE Class	Units
053	FIL	1000	Newtons
Max	Time	Min	Time
1160.4	52.0	-489.1	91.1



Curve Description

Passenger Upper Neck Moment Y

CURNO	Type	SAE Class	Units
055	FIL	600	Nm
Max	Time	Min	Time
26.0	121.6	-22.0	97.7



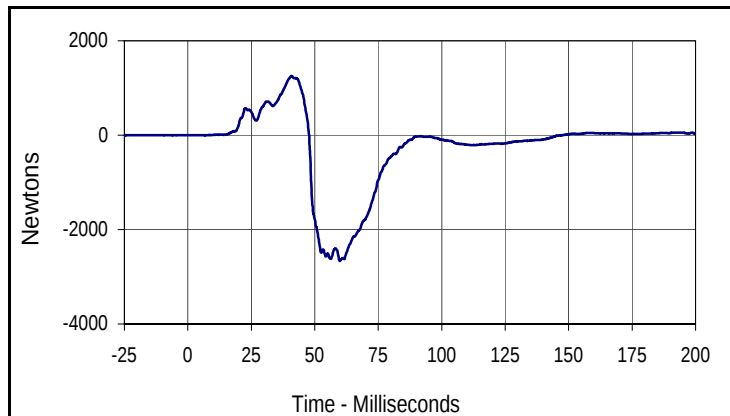
Curve Description

Passenger Nij

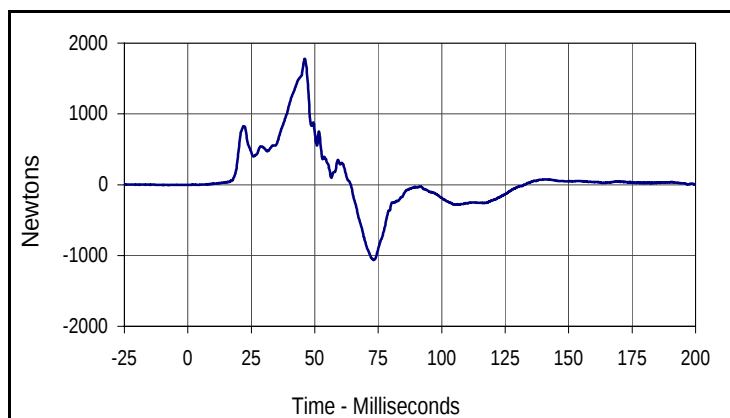
Units	Type	Max	Time
Ntf	FIL	0.19	121.7
Units	Type	Max	Time
Nte	FIL	0.51	55.3
Units	Type	Max	Time
Ncf	FIL	0.19	125.1
Units	Type	Max	Time
Nce	FIL	0.40	93.9

Test Vehicle: 2011 Kia Soul Plus 5-Door MPV
 Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test

Test Date: 10/22/10
 NHTSA No.: MB0517



Curve Description			
Passenger Left Femur Force Z			
CURNO	Type	SAE Class	Units
067	FIL	600	Newtons
Max	Time	Min	Time
1252.3	40.8	-2661.0	59.8



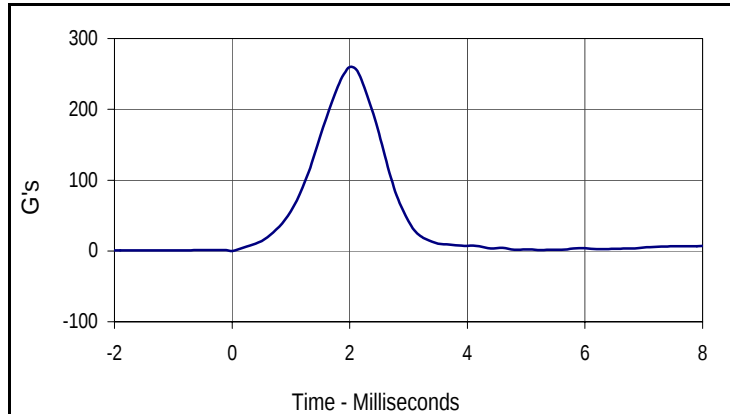
Curve Description			
Passenger Right Femur Force Z			
CURNO	Type	SAE Class	Units
068	FIL	600	Newtons
Max	Time	Min	Time
1777.4	46.0	-1064.0	73.3

APPENDIX C
DUMMY CALIBRATION AND PERFORMANCE VERIFICATION DATA

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

Test Program: Hybrid III 50th Percentile Male Head Drop TestTest Date: 10/14/10ATD Serial No.: 035Test I.D.: HDM10B

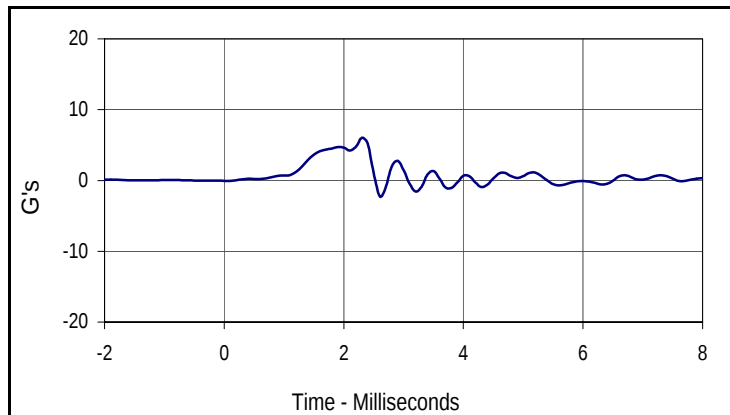
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	259.8	Pass
Peak Lateral Acceleration	G's	≤15.0	6.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



Curve Description

Head Resultant

CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
259.8	2.0	0.1	0.0



Curve Description

Head Y

CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
6.0	2.3	-2.2	2.6

Test Program: Hybrid III 50th Percentile Male Thorax Impact Test

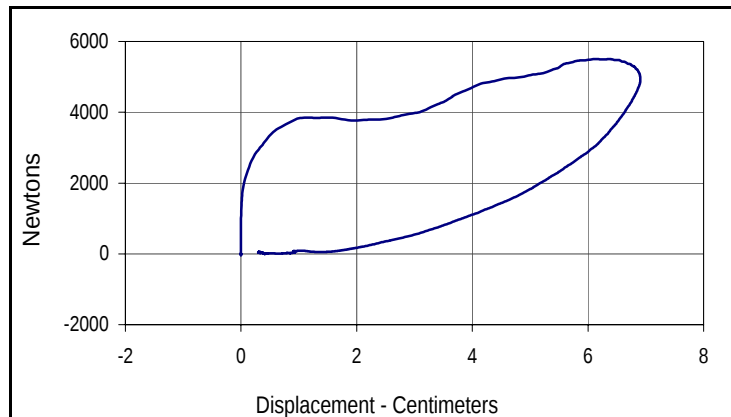
Test Date: 10/14/10

ATD Serial No.: 035

Test I.D.: CHM10B



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	6.58 to 6.82	6.61	Pass
Peak Probe Force	Newtons	5159 to 5893	5504	Pass
Peak Sternum Deflection	CM	6.35 to 7.26	6.91	Pass
Internal Hysteresis	%	69 to 85	72.3	Pass
Overall Test Results				Pass



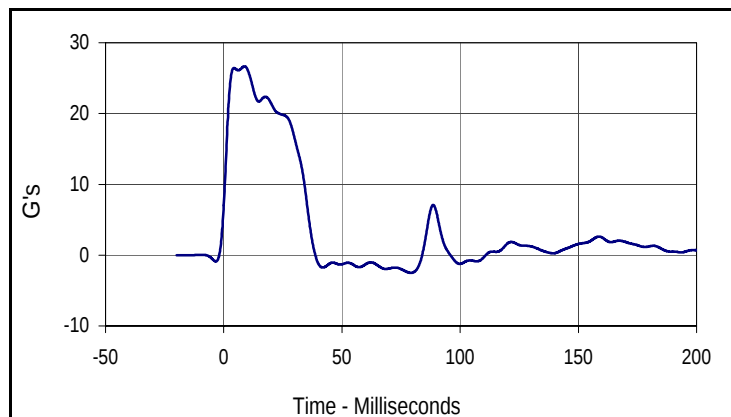
Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysteresis
001	FIL	180	72.3
Peak Probe Force		Peak Chest Deflection	
5504		6.91	

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 ATD Serial No.: 035

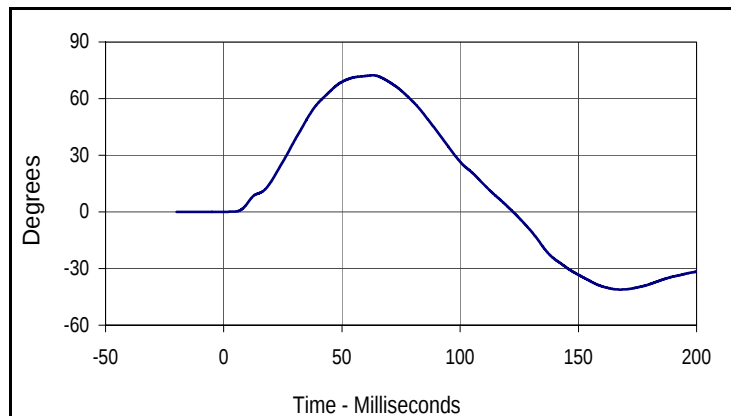
Test Date: 10/14/10
 Test I.D.: NFM10B



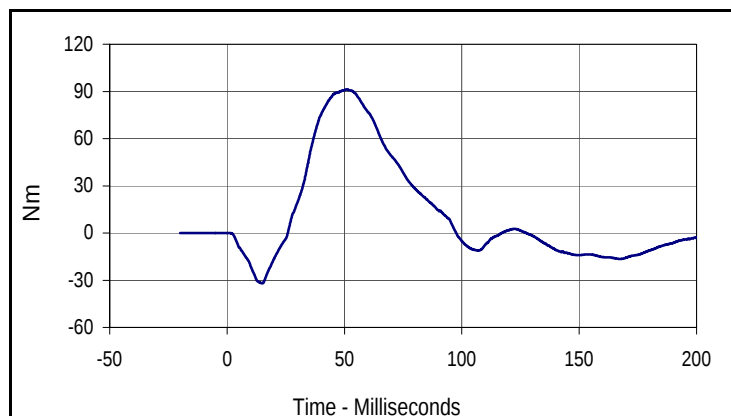
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.94	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	26.2	Pass
	20 Msec.	G's	17.6 to 22.6	21.5	Pass
	30 Msec.	G's	12.5 to 18.5	16.5	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	16.5	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	36.1	Pass
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	72.4	Pass
	Time	Msec.	57.0 to 64.0	63.1	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	122.4	Pass
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	91.3	Pass
	Time	Msec.	47.0 to 58.0	51.2	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	97.6	Pass
Overall Test Results					Pass



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
26.7	8.8	-2.5	79.2



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
72.4	63.1	-41.1	167.7



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
91.3	51.2	-31.9	15.0

Test Program: Hybrid III 50th Percentile Male Neck Extension Test

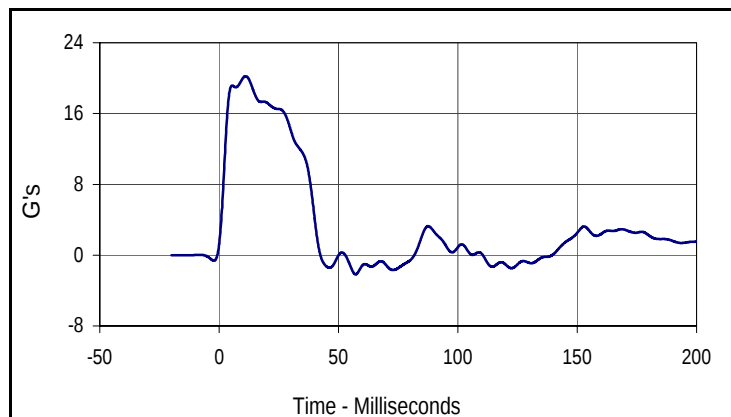
Test Date: 10/14/10

ATD Serial No.: 035

Test I.D.: NEM10B



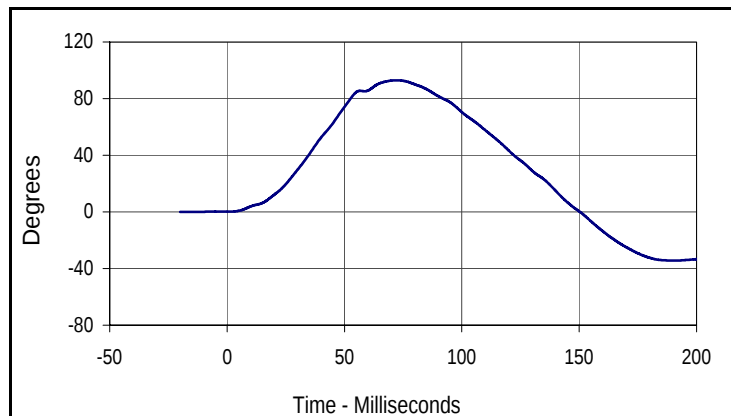
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.94 to 6.19	6.09	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	20.0	Pass
	20 Msec.	G's	14.0 to 19.0	17.2	Pass
	30 Msec.	G's	11.0 to 16.0	14.1	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	14.1	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	39.7	Pass
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	93.0	Pass
	Time	Msec.	72.0 to 82.0	72.2	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	150.4	Pass
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-77.8	Pass
	Time	Msec.	65.0 to 79.0	65.1	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	139.9	Pass
Overall Test Results					Pass



Curve Description

Pendulum Deceleration

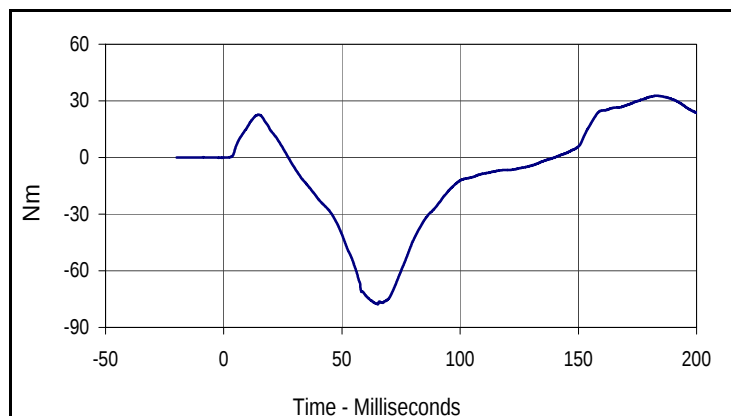
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
20.2	11.1	-2.2	57.2



Curve Description

"D" Plane Rotation

CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
93.0	72.2	-34.4	190.4



Curve Description

Moment About Occipital Condyle

CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
32.8	183.3	-77.8	65.1

Test Program: Hybrid III 50th Percentile Male Knee Impact Test

Test Date: 10/14/10

ATD Serial No.: 035

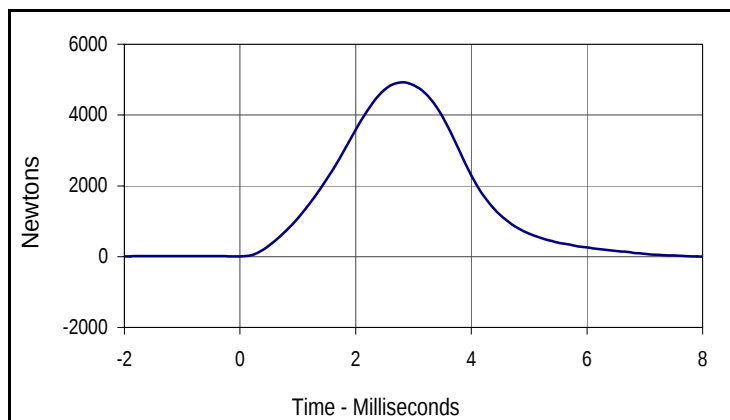
Test I.D.: LKM10B , RKM10B

**Left Knee**

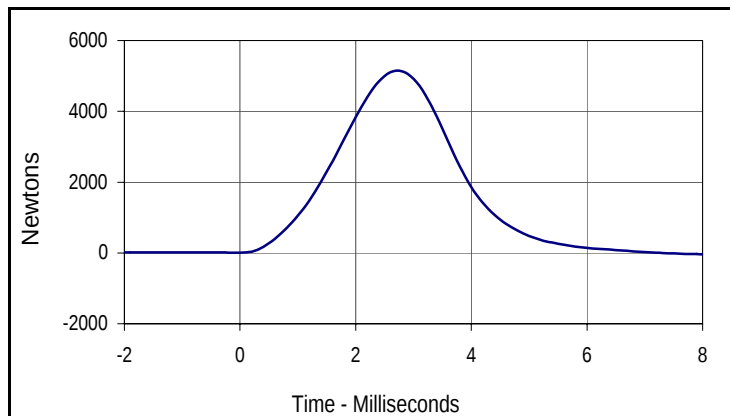
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	4715 to 5782	4924	Pass
Overall Test Results				Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	4715 to 5782	5146	Pass
Overall Test Results				Pass

**Curve Description****Left Knee Probe Force**

CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4924.0	2.8	-13.9	8.7

**Curve Description****Right Knee Probe Force**

CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
5146.1	2.7	-34.2	8.0

Test Program: Hybrid III 50th Percentile Male External Measurements

Test Date: 10/14/10

ATD Serial No.: 035

Test I.D.: N/A



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
A - Total sitting height	mm	879 to 889	881	Pass
B - Shoulder pivot height	mm	505 to 521	515	Pass
C - "H" point height	mm	84 to 89	84	Pass
D - "H" point from seat back	mm	135 to 140	136	Pass
E - Shoulder pivot from back	mm	84 to 94	85	Pass
F - Thigh clearance	mm	140 to 155	147	Pass
G - Elbow back to wrist pivot	mm	290 to 305	299	Pass
H - Skull cap to back line	mm	41 to 46	45	Pass
I - Shoulder to elbow length	mm	330 to 345	334	Pass
J - Elbow rest height	mm	190 to 211	204	Pass
K - Buttock to knee length	mm	579 to 604	586	Pass
L - Popliteal length	mm	429 to 455	432	Pass
M - Knee pivot height	mm	485 to 500	485	Pass
N - Buttock popliteal length	mm	452 to 477	469	Pass
O - Chest depth	mm	213 to 229	215	Pass
P - Foot length	mm	251 to 267	261	Pass
V - Shoulder breadth	mm	422 to 437	430	Pass
W - Foot breadth	mm	91 to 107	99	Pass
Y - Chest circumference	mm	970 to 1001	986	Pass
Z - Waist circumference	mm	836 to 866	864	Pass
AA - Location for chest circumference	mm	429 to 434	431	Pass
BB - Location for waist circumference	mm	226 to 231	228	Pass
Overall Test Results				Pass

Test Program: Hybrid III 5th Percentile Female Head Drop TestTest Date: 10/7/10ATD Serial No.: 141Test I.D.: HDF10A

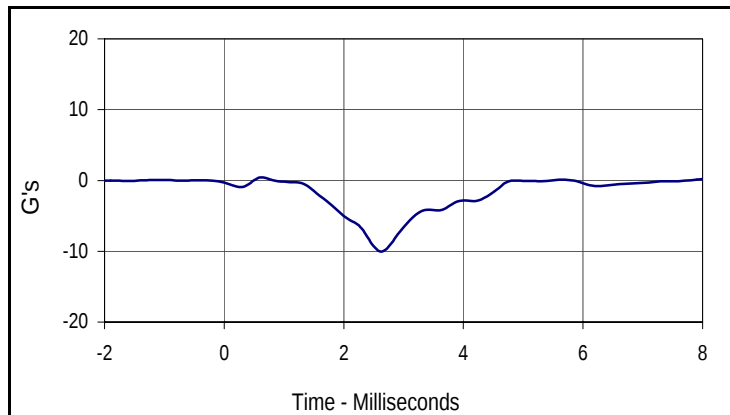
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	250.0 to 300.0	269.2	Pass
Peak Lateral Acceleration	G's	≤15.0	10.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



Curve Description

Head Resultant

CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
269.2	2.6	0.0	-1.9



Curve Description

Head Y

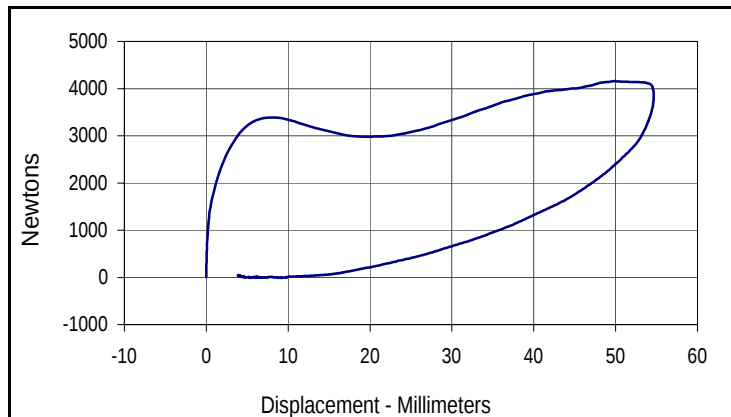
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.4	0.6	-10.0	2.6

Test Program: Hybrid III 5th Percentile Female Thorax Impact Test
 ATD Serial No.: 141

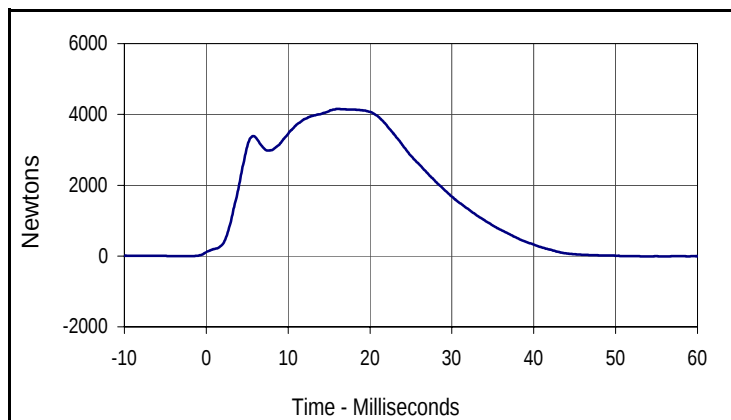
Test Date: 10/7/10
 Test I.D.: CHF10A



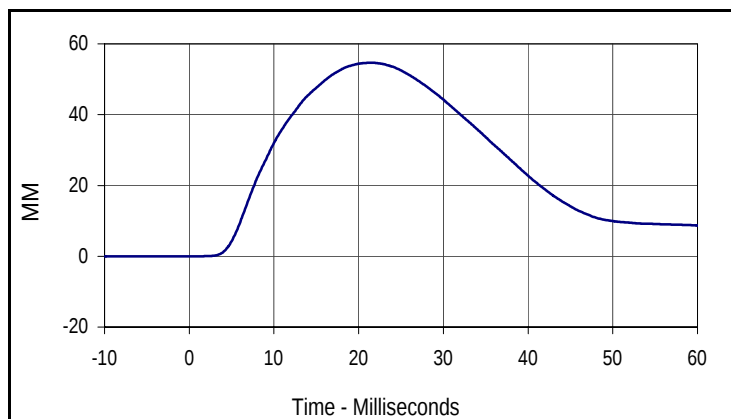
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.59 to 6.83	6.78	Pass
Peak Chest Deflection	MM	50.0 to 58.0	54.7	Pass
Peak Force Between 50 and 58 MM	Newtons	3900 to 4400	4157	Pass
Peak Force Between 18 and 50 MM	Newtons	≤4600	4156	Pass
Internal Hysteresis	%	69 to 85	75.4	Pass
Overall Test Results			Pass	



Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysteresis
003	FIL	180	75.4
Peak Probe Force		Peak Chest Displ.	
4156.9		54.7	



Curve Description			
Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
4156.9	16.1	-8.9	56.2



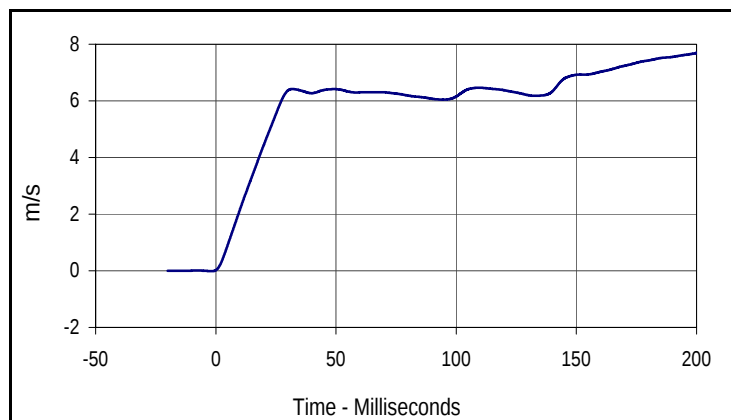
Curve Description			
Chest Deflection			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
54.7	21.4	0.0	-10.0

Test Program: Hybrid III 5th Percentile Female Neck Flexion Test
 ATD Serial No.: 141

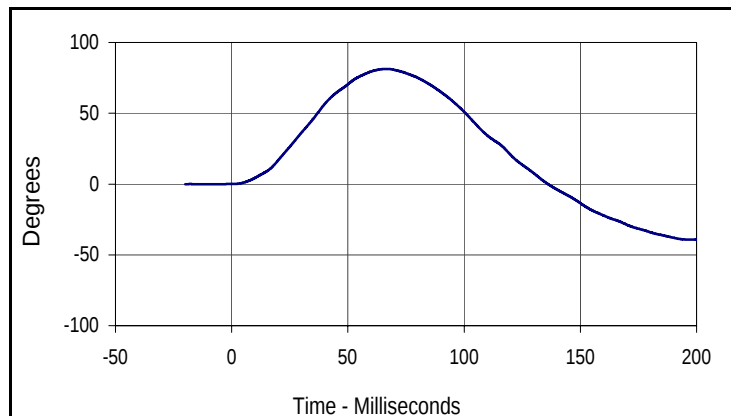
Test Date: 10/8/10
 Test I.D.: NF10A



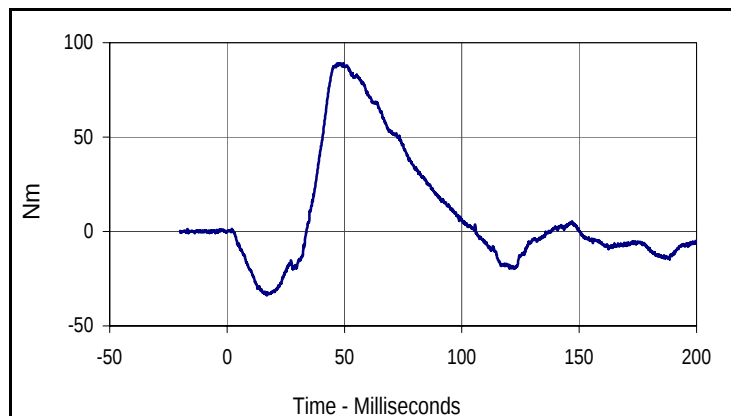
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.00	Pass
Pendulum Deceleration	10 Msec.	m/s	2.1 to 2.5	2.2	Pass
	20 Msec.	m/s	4.0 to 5.0	4.5	Pass
	30 Msec.	m/s	5.8 to 7.0	6.4	Pass
"D" Plane Rotation	Max	Degrees	77.0 to 91.0	81.3	Pass
Peak Moment in Rotation	Max	Nm	69.0 to 83.0	81.2	Pass
Positive Moment Decay, Time To 10 Nm		Msec.	80.0 to 100.0	96.3	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
7.7	200.0	0.0	-1.8



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
81.3	66.6	-39.3	200.0



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
89.1	48.0	-33.8	16.9

Test Program: Hybrid III 5th Percentile Female Neck Extension Test

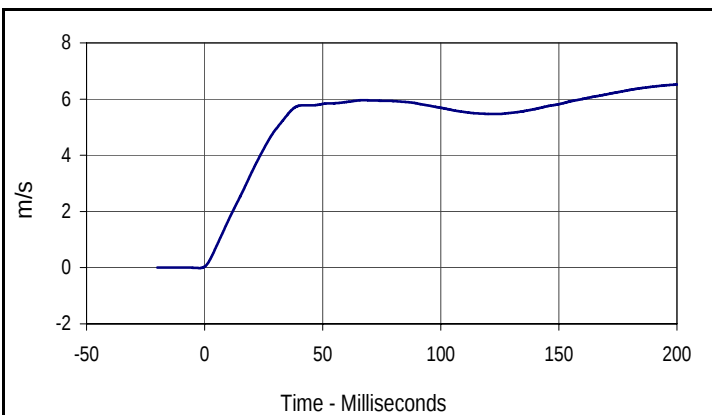
Test Date: 10/8/10



ATD Serial No.: 141

Test I.D.: NE10A

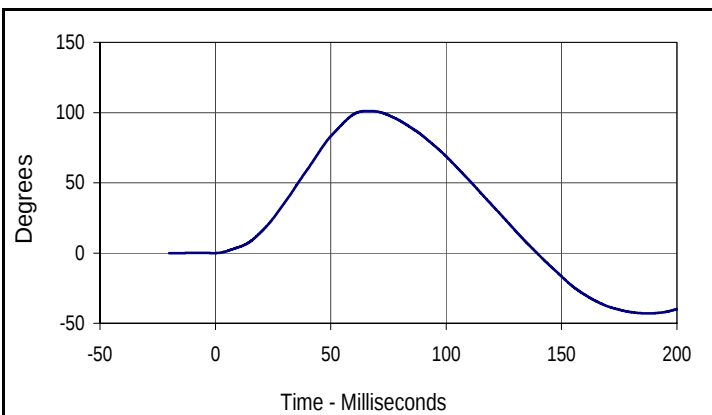
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.00	Pass
Pendulum Deceleration	10 Msec.	m/s	1.5 to 1.9	1.7	Pass
	20 Msec.	m/s	3.1 to 3.9	3.4	Pass
	30 Msec.	m/s	4.6 to 5.6	4.9	Pass
"D" Plane Rotation	Max	Degrees	99.0 to 114.0	101.1	Pass
Peak Moment in Rotation	Max	Nm	-53.0 to -65.0	-56.4	Pass
Positive Moment Decay, Time To -10 Nm		Msec.	94.0 to 114.0	96.5	Pass
			Overall Test Results		Pass



Curve Description

Pendulum Velocity

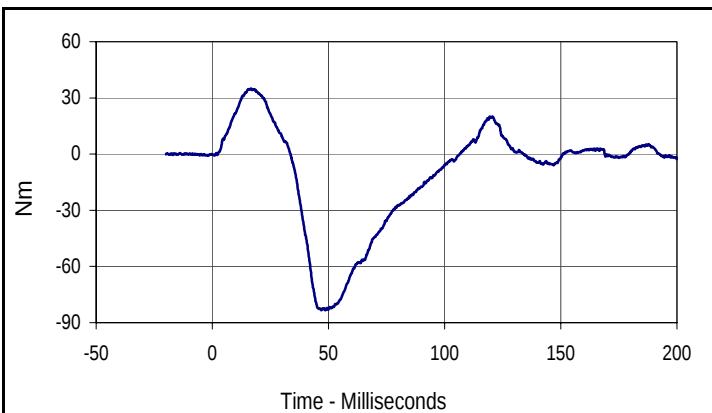
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
6.5	200.0	0.0	-2.2



Curve Description

"D" Plane Rotation

CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
101.1	65.4	-43.0	187.9



Curve Description

Moment About Occipital Condyle

CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
35.0	16.7	-83.4	46.9

Test Program: Hybrid III 5th Percentile Female Knee Impact Test
 ATD Serial No.: 141

Test Date: 10/8/10
 Test I.D.: LKF10A , RKB10A



Left Knee

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.11	Pass
Peak Probe Force	Newtons	3450 to 4060	3907	Pass
Overall Test Results				Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.11	Pass
Peak Probe Force	Newtons	3450 to 4060	3843	Pass
Overall Test Results				Pass



Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3906.9	4.3	4.4	-0.4



Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
3843.1	4.3	-2.6	-0.4

Test Program: Hybrid III 5th Percentile Female Torso Flexion Test

Test Date: 10/8/10

ATD Serial No.: 141

Test I.D.: TF10A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Initial reference plane angle	Degrees	≤20.0	0.9	Pass
Peak Force at 45 +/-0.5 degrees	Newtons	320.0 to 390.0	321.0	Pass
Torso rotation rate	deg/sec	0.5 to 1.5	1.0	Pass
Final reference plane angle	Degrees	+/-8	1.7	Pass
Overall Test Results				Pass

Test Program: Hybrid III 5th Percentile Female External Measurements

Test Date: 10/8/10

ATD Serial No.: 141

Test I.D.: N/A



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
A - Total sitting height	mm	774.7 to 800.1	784	Pass
B - Shoulder pivot height	mm	431.8 to 457.2	440	Pass
C - "H" point height (Reference)	mm	81.3 to 86.3	85	Pass
D - "H" point from seat back (Ref.)	mm	144.8 to 149.8	146	Pass
E - Shoulder pivot from backline	mm	68.6 to 83.8	82	Pass
F - Thigh clearance	mm	119.4 to 134.6	130	Pass
G - Back of elbow to wrist pivot	mm	243.9 to 259.1	253	Pass
H - Head to back line	mm	40.7 to 45.7	45	Pass
I - Shoulder to elbow length	mm	276.8 to 297.2	285	Pass
J - Elbow rest height	mm	182.8 to 203.2	201	Pass
K - Buttock to knee length	mm	520.7 to 546.1	538	Pass
L - Popliteal height	mm	355.6 to 376.0	361	Pass
M - Knee pivot height	mm	393.7 to 419.1	415	Pass
N - Buttock popliteal length	mm	414.0 to 439.4	420	Pass
O - Chest depth without jacket	mm	175.3 to 190.5	183	Pass
P - Foot length	mm	218.5 to 233.7	230	Pass
R - Buttock to knee pivot length	mm	457.2 to 482.6	467	Pass
S - Head breadth	mm	137.1 to 147.3	145	Pass
T - Head depth	mm	177.8 to 188.0	183	Pass
U - Hip breadth	mm	299.7 to 314.9	310	Pass
V - Shoulder breadth	mm	350.5 to 365.7	362	Pass
W - Foot breadth	mm	78.8 to 94.0	90	Pass
X - Head circumference	mm	528.3 to 548.7	542	Pass
Y - Chest circumference with jacket	mm	850.8 to 881.3	853	Pass
Z - Waist circumference	mm	759.5 to 789.9	778	Pass
AA - Location for chest circumference	mm	299.7 to 309.9	302	Pass
BB - Location for waist circumference	mm	160.1 to 170.2	165	Pass
Overall Test Results				Pass

Test Program: Dummy Damage Checklist
 ATD Serial No.: 035

Test Date: 10/14/10
 Test I.D.: N/A



GENERAL	DAMAGED	OK
Outer skin on entire dummy		X
Head ballast secure		X
Gashes, rips, general appearance, etc.		X
Neck-Broken or cracks in rubber		X
Check that upper neck bracket is firmly attached to lwr neck bracket		X
Three rubber bumpers in place		X
Spine- Broken or cracks in rubber		X
Check for looseness at the condyle joint		X
Nodding blocks- cracked or out of position		X
Ribs- Check all ribs and rib supports for damage (bent or broken)		X
Check damping material or separation or cracks		X
OTHER		
CHEST DISPLACEMENT ASSEMBLY		
Bent shaft		X
Slider arm riding correctly, in track		X
TRANSDUCER LEADS		
Torn cables		X
ACCELEROMETER MOUNTINGS		
Check for secure mounting		X
KNEES		
Check outer skin, insert and casting (without removing insert)		X
Knee sliders - Wires intact		X
Knee sliders- Rubber returned to "at rest position"		X
LIMBS		
Check for normal movement and adjustment		X
PELVIS		
Inspect for breakage, especially at iliac crest		X

Comments on repair or replacement parts:

Test Program: Dummy Damage Checklist
 ATD Serial No.: 141

Test Date: 10/8/10
 Test I.D.: N/A



GENERAL	DAMAGED	OK
Outer skin on entire dummy		X
Head ballast secure		X
Gashes, rips, general appearance, etc.		X
Neck-Broken or cracks in rubber		X
Check that upper neck bracket is firmly attached to lwr neck bracket		X
Three rubber bumpers in place		X
Spine- Broken or cracks in rubber		X
Check for looseness at the condyle joint		X
Nodding blocks- cracked or out of position		X
Ribs- Check all ribs and rib supports for damage (bent or broken)		X
Check damping material or separation or cracks		X
OTHER		
CHEST DISPLACEMENT ASSEMBLY		
Bent shaft		X
Slider arm riding correctly, in track		X
TRANSDUCER LEADS		
Torn cables		X
ACCELEROMETER MOUNTINGS		
Check for secure mounting		X
KNEES		
Check outer skin, insert and casting (without removing insert)		X
Knee sliders - Wires intact		X
Knee sliders- Rubber returned to "at rest position"		X
LIMBS		
Check for normal movement and adjustment		X
PELVIS		
Inspect for breakage, especially at iliac crest		X

Comments on repair or replacement parts:

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

Test Program: Hybrid III 50th Percentile Male Head Drop Test

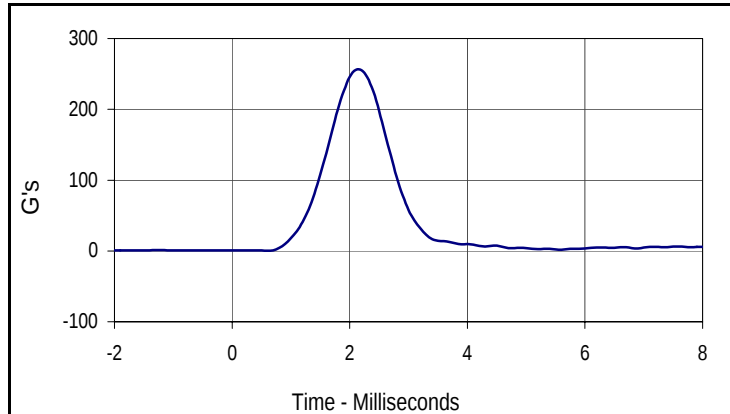
Test Date: 10/25/10

ATD Serial No.: 035

Test I.D.: HDM10C



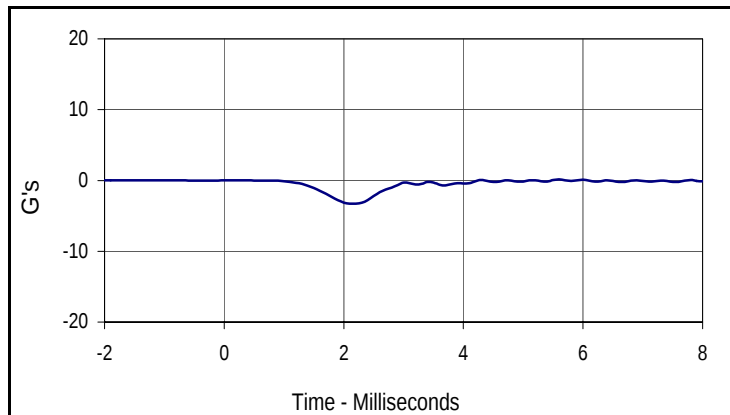
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	255.5	Pass
Peak Lateral Acceleration	G's	≤15.0	3.3	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



Curve Description

Head Resultant

CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
255.5	2.1	0.5	0.6



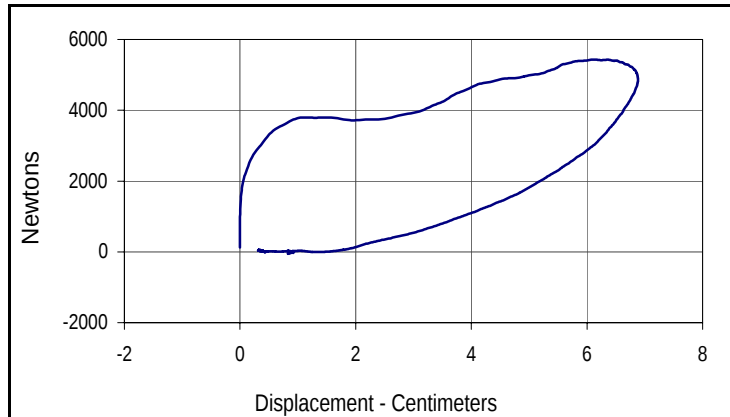
Curve Description

Head Y

CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.1	5.6	-3.3	2.2

Test Program: Hybrid III 50th Percentile Male Thorax Impact TestTest Date: 10/25/10ATD Serial No.: 035Test I.D.: CHM10C

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	6.58 to 6.82	6.70	Pass
Peak Probe Force	Newtons	5159 to 5893	5429	Pass
Peak Sternum Deflection	CM	6.35 to 7.26	6.88	Pass
Internal Hysteresis	%	69 to 85	72.4	Pass
Overall Test Results				Pass

**Curve Description****Probe Force vs. Chest Deflection**

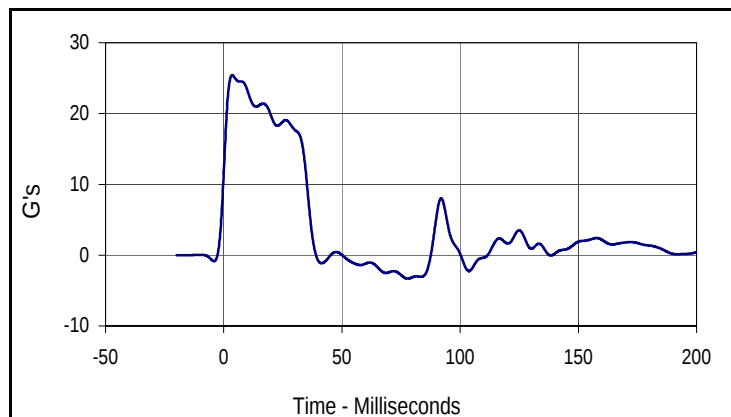
CURNO	Type	SAE Class	Hysteresis
001	FIL	180	72.4
Peak Probe Force		Peak Chest Deflection	
5429		6.88	

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 ATD Serial No.: 035

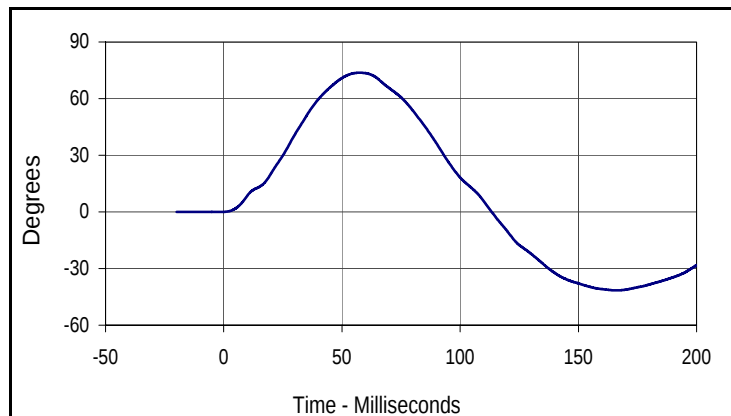
Test Date: 10/25/10
 Test I.D.: NFM10C



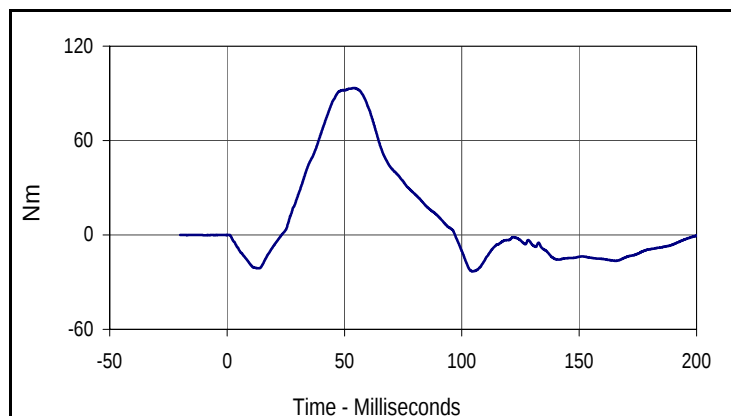
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.96	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.3	Pass
	20 Msec.	G's	17.6 to 22.6	19.7	Pass
	30 Msec.	G's	12.5 to 18.5	17.7	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	17.7	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	36.7	Pass
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	73.7	Pass
	Time	Msec.	57.0 to 64.0	57.5	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	113.4	Pass
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	93.4	Pass
	Time	Msec.	47.0 to 58.0	54.1	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	97.1	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
25.4	3.6	-3.3	77.8



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
73.7	57.5	-41.5	166.0



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
93.4	54.1	-23.1	104.6

Test Program: Hybrid III 50th Percentile Male Neck Extension Test

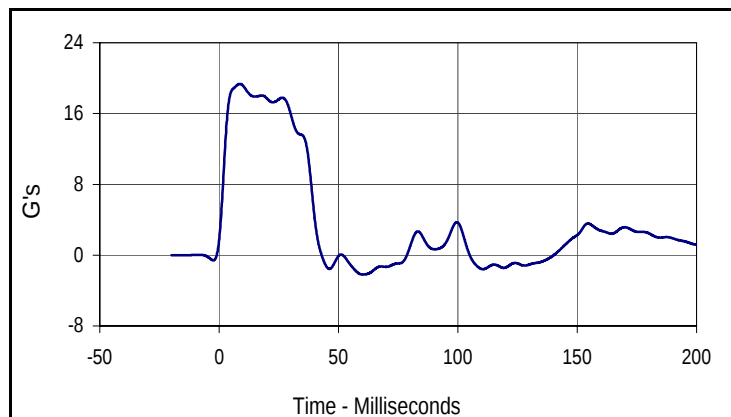
Test Date: 10/25/10

ATD Serial No.: 035

Test I.D.: NEM10C



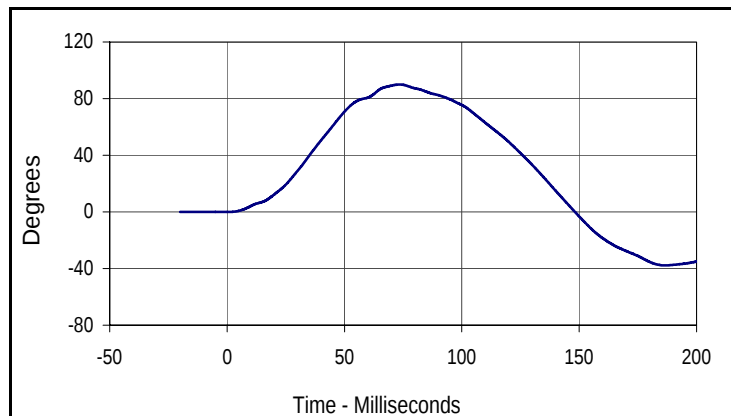
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.94 to 6.19	6.10	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	19.1	Pass
	20 Msec.	G's	14.0 to 19.0	17.7	Pass
	30 Msec.	G's	11.0 to 16.0	15.9	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	15.9	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	39.7	Pass
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	90.0	Pass
	Time	Msec.	72.0 to 82.0	73.5	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	148.2	Pass
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-66.4	Pass
	Time	Msec.	65.0 to 79.0	69.9	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	143.1	Pass
			Overall Test Results		Pass



Curve Description

Pendulum Deceleration

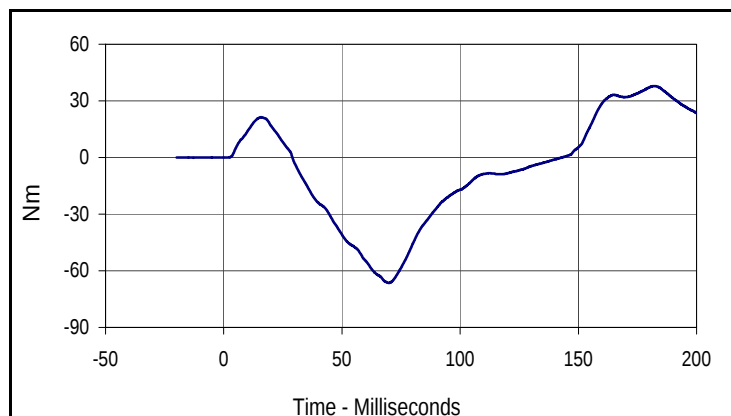
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
19.3	8.7	-2.2	60.2



Curve Description

"D" Plane Rotation

CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
90.0	73.5	-37.8	186.5



Curve Description

Moment About Occipital Condyle

CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
37.8	181.7	-66.4	69.9

Test Program: Hybrid III 50th Percentile Male Knee Impact Test
 ATD Serial No.: 035

Test Date: 10/25/10
 Test I.D.: LKM10C , RKM10C

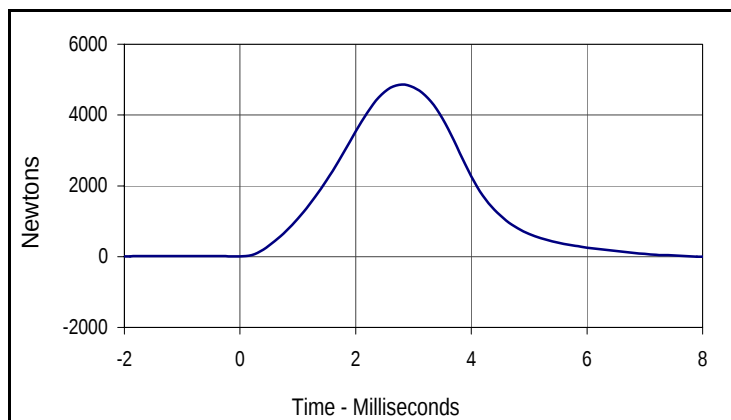


Left Knee

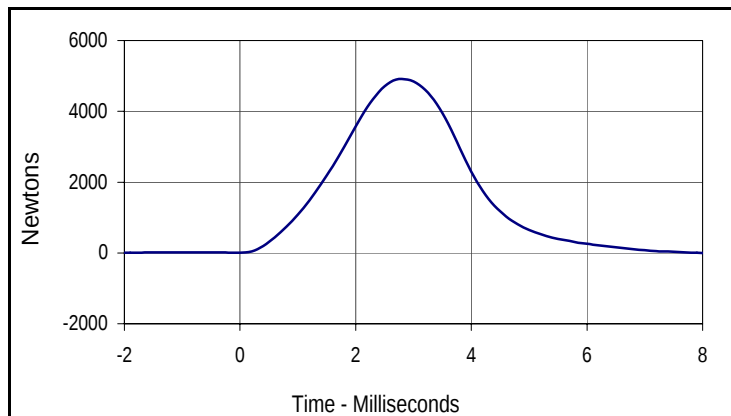
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	4715 to 5782	4861	Pass
Overall Test Results				Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	4715 to 5782	4917	Pass
Overall Test Results				Pass



Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4860.9	2.8	-12.9	8.7



Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
4917.4	2.8	-12.8	8.7

Test Program: Hybrid III 50th Percentile Male External Measurements

Test Date: 10/25/10

ATD Serial No.: 035

Test I.D.: N/A



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
A - Total sitting height	mm	879 to 889	881	Pass
B - Shoulder pivot height	mm	505 to 521	515	Pass
C - "H" point height	mm	84 to 89	86	Pass
D - "H" point from seat back	mm	135 to 140	138	Pass
E - Shoulder pivot from back	mm	84 to 94	86	Pass
F - Thigh clearance	mm	140 to 155	147	Pass
G - Elbow back to wrist pivot	mm	290 to 305	296	Pass
H - Skull cap to back line	mm	41 to 46	43	Pass
I - Shoulder to elbow length	mm	330 to 345	333	Pass
J - Elbow rest height	mm	190 to 211	206	Pass
K - Buttock to knee length	mm	579 to 604	587	Pass
L - Popliteal length	mm	429 to 455	432	Pass
M - Knee pivot height	mm	485 to 500	486	Pass
N - Buttock popliteal length	mm	452 to 477	468	Pass
O - Chest depth	mm	213 to 229	215	Pass
P - Foot length	mm	251 to 267	259	Pass
V - Shoulder breadth	mm	422 to 437	431	Pass
W - Foot breadth	mm	91 to 107	99	Pass
Y - Chest circumference	mm	970 to 1001	986	Pass
Z - Waist circumference	mm	836 to 866	862	Pass
AA - Location for chest circumference	mm	429 to 434	431	Pass
BB - Location for waist circumference	mm	226 to 231	231	Pass
Overall Test Results				Pass

Test Program: Hybrid III 5th Percentile Female Head Drop TestTest Date: 10/25/10ATD Serial No.: 141Test I.D.: HDF10B

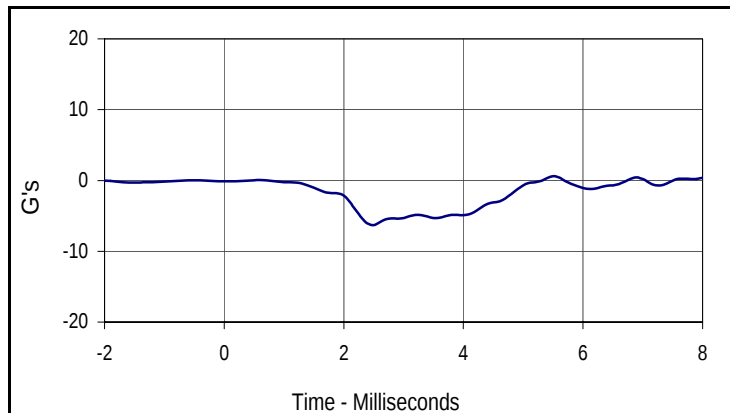
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	250.0 to 300.0	269.7	Pass
Peak Lateral Acceleration	G's	≤15.0	6.3	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



Curve Description

Head Resultant

CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
269.7	2.5	0.4	-1.3



Curve Description

Head Y

CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.6	5.5	-6.3	2.5

Test Program: Hybrid III 5th Percentile Female Thorax Impact Test

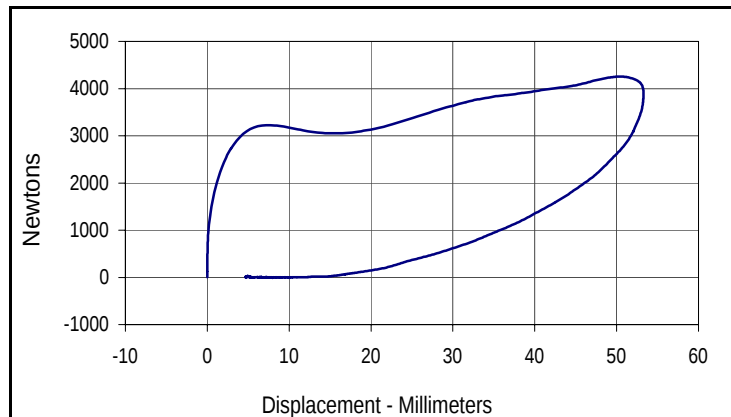
Test Date: 10/25/10

ATD Serial No.: 141

Test I.D.: CHF10B



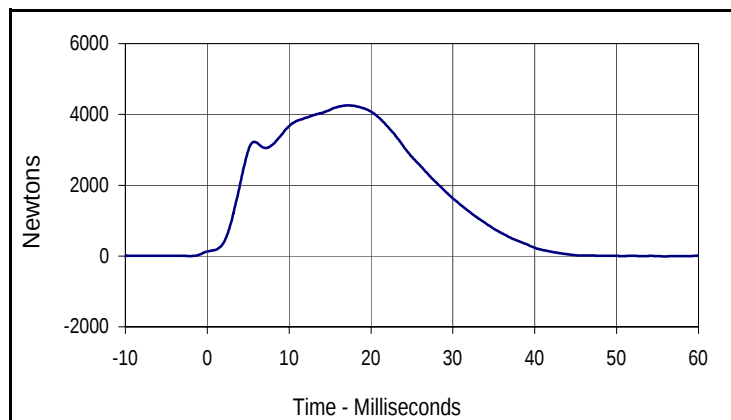
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.59 to 6.83	6.70	Pass
Peak Chest Deflection	MM	50.0 to 58.0	53.3	Pass
Peak Force Between 50 and 58 MM	Newtons	3900 to 4400	4251	Pass
Peak Force Between 18 and 50 MM	Newtons	≤4600	4255	Pass
Internal Hysteresis	%	69 to 85	77.0	Pass
Overall Test Results			Pass	



Curve Description

Probe Force vs. Chest Deflection

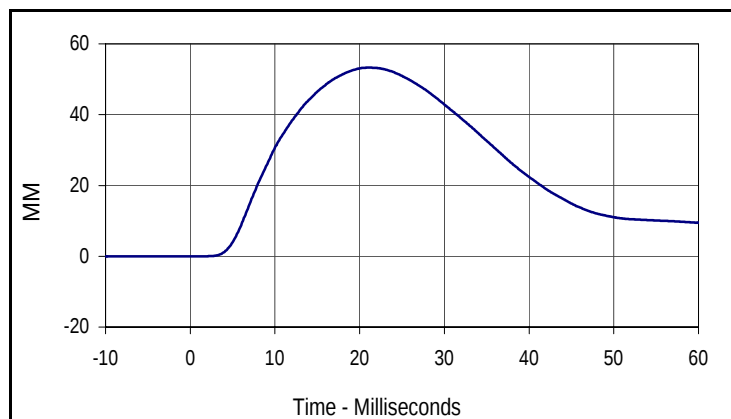
CURNO	Type	SAE Class	Hysteresis
003	FIL	180	77.0
Peak Probe Force		Peak Chest Displ.	
4254.7		53.3	



Curve Description

Probe Force

CURNO	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
4254.7	17.2	-9.1	55.8



Curve Description

Chest Deflection

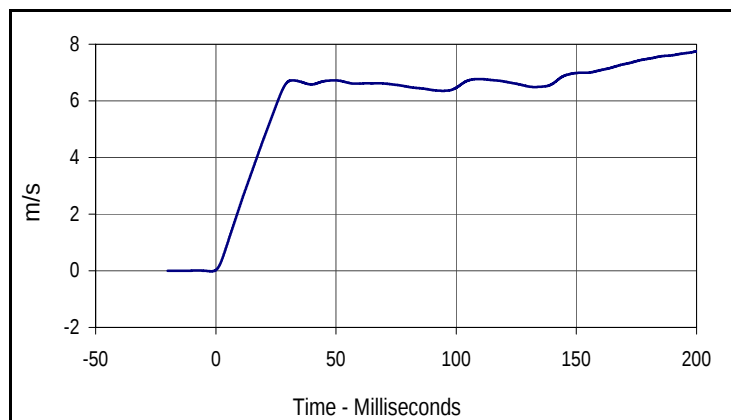
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
53.3	21.1	0.0	-7.7

Test Program: Hybrid III 5th Percentile Female Neck Flexion Test
 ATD Serial No.: 141

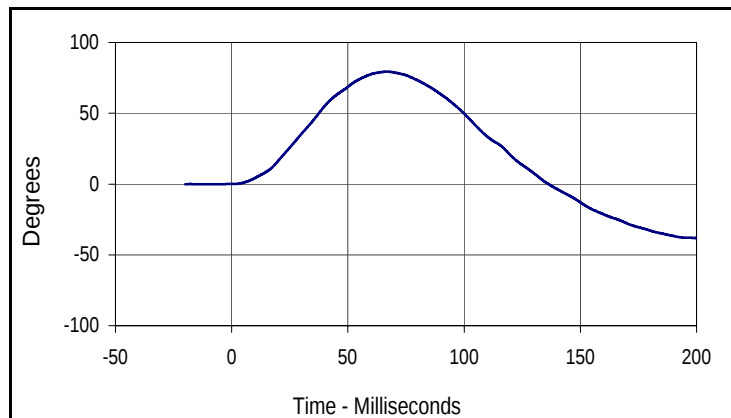
Test Date: 10/25/10
 Test I.D.: NF10B



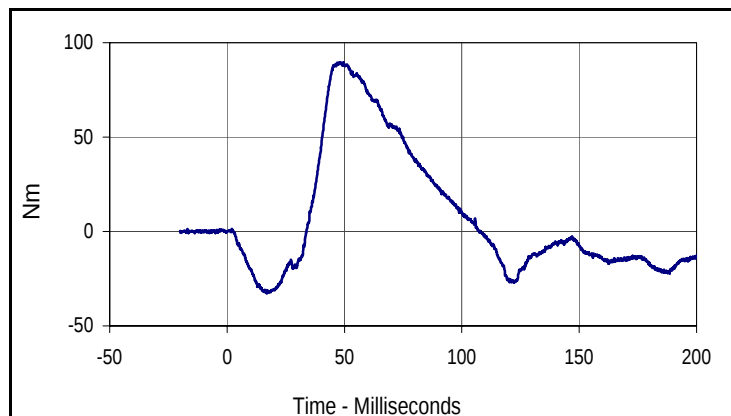
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.01	Pass
Pendulum Deceleration	10 Msec.	m/s	2.1 to 2.5	2.3	Pass
	20 Msec.	m/s	4.0 to 5.0	4.7	Pass
	30 Msec.	m/s	5.8 to 7.0	6.7	Pass
"D" Plane Rotation	Max	Degrees	77.0 to 91.0	79.4	Pass
Peak Moment in Rotation	Max	Nm	69.0 to 83.0	76.1	Pass
Positive Moment Decay, Time To 10 Nm		Msec.	80.0 to 100.0	99.7	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
7.8	200.0	0.0	-1.8



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
79.4	66.8	-38.0	200.0



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
89.6	48.0	-32.9	16.9

Test Program: Hybrid III 5th Percentile Female Neck Extension Test

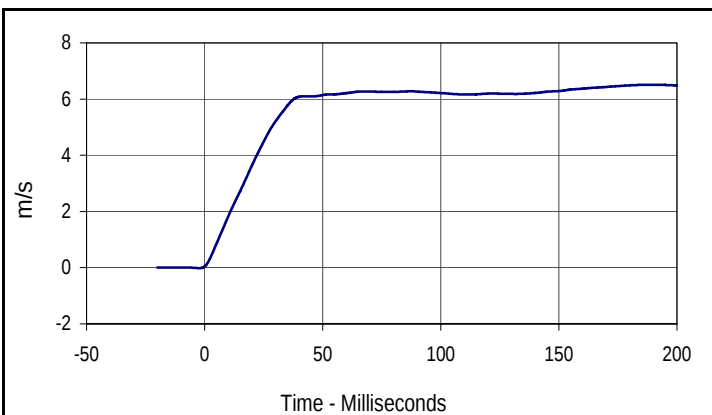
Test Date: 10/25/10

ATD Serial No.: 141

Test I.D.: NE10B



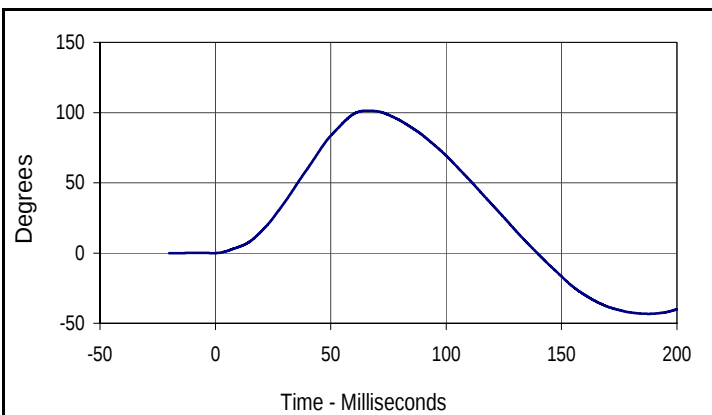
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.04	Pass
Pendulum Deceleration	10 Msec.	m/s	1.5 to 1.9	1.8	Pass
	20 Msec.	m/s	3.1 to 3.9	3.6	Pass
	30 Msec.	m/s	4.6 to 5.6	5.2	Pass
"D" Plane Rotation	Max	Degrees	99.0 to 114.0	101.3	Pass
Peak Moment in Rotation	Max	Nm	-53.0 to -65.0	-57.4	Pass
Positive Moment Decay, Time To -10 Nm		Msec.	94.0 to 114.0	99.5	Pass
			Overall Test Results		Pass



Curve Description

Pendulum Velocity

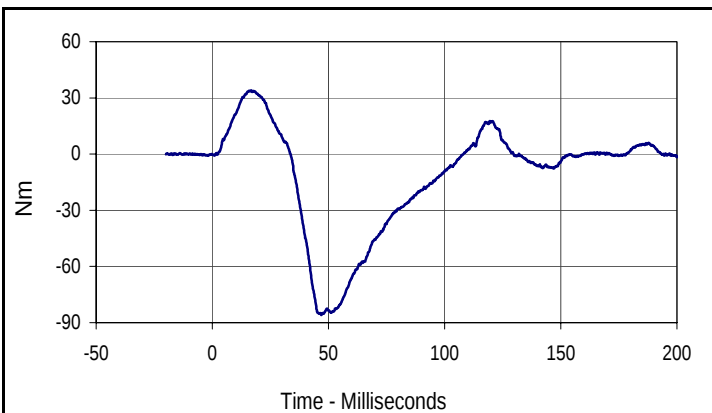
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
6.5	190.4	0.0	-2.3



Curve Description

"D" Plane Rotation

CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
101.3	65.3	-43.3	187.8



Curve Description

Moment About Occipital Condyle

CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
34.1	16.7	-85.9	46.9

Test Program: Hybrid III 5th Percentile Female Knee Impact Test
 ATD Serial No.: 141

Test Date: 10/25/10
 Test I.D.: LKF10B , RKB10B

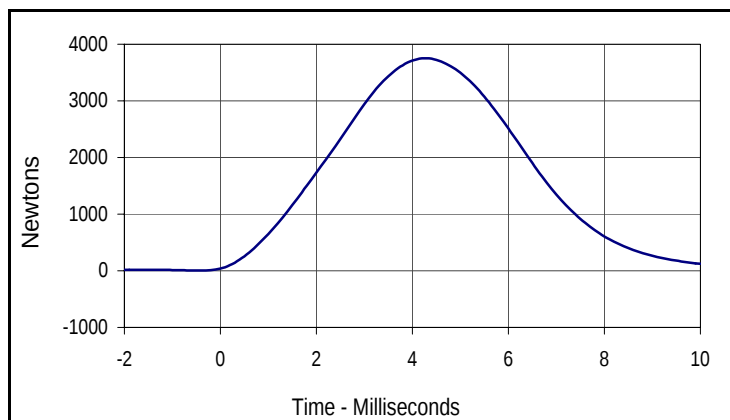


Left Knee

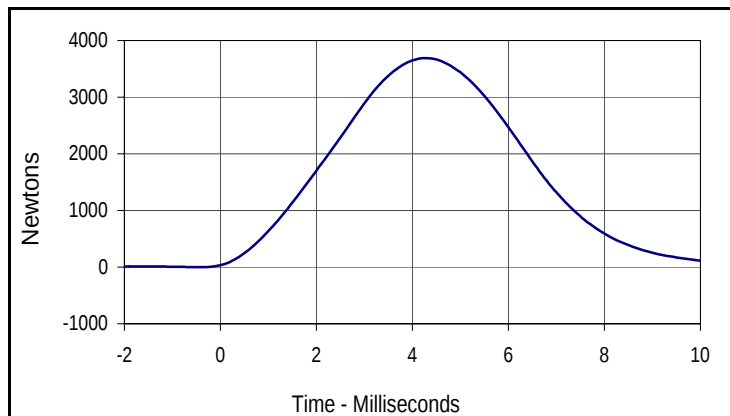
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	3450 to 4060	3752	Pass
Overall Test Results			Pass	

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.07	Pass
Peak Probe Force	Newtons	3450 to 4060	3691	Pass
Overall Test Results			Pass	



Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3752.2	4.3	4.3	-0.4



Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
3690.9	4.3	-2.5	-0.4

Test Program: Hybrid III 5th Percentile Female Torso Flexion Test

Test Date: 10/25/10

ATD Serial No.: 141

Test I.D.: TF10B



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Initial reference plane angle	Degrees	≤20.0	0.7	Pass
Peak Force at 45 +/-0.5 degrees	Newtons	320.0 to 390.0	324.5	Pass
Torso rotation rate	deg/sec	0.5 to 1.5	0.9	Pass
Final reference plane angle	Degrees	+/-8	1.0	Pass
Overall Test Results				Pass

Test Program: Hybrid III 5th Percentile Female External Measurements

Test Date: 10/25/10

ATD Serial No.: 141

Test I.D.: N/A



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
A - Total sitting height	mm	774.7 to 800.1	785	Pass
B - Shoulder pivot height	mm	431.8 to 457.2	440	Pass
C - "H" point height (Reference)	mm	81.3 to 86.3	84	Pass
D - "H" point from seat back (Ref.)	mm	144.8 to 149.8	145	Pass
E - Shoulder pivot from backline	mm	68.6 to 83.8	81	Pass
F - Thigh clearance	mm	119.4 to 134.6	130	Pass
G - Back of elbow to wrist pivot	mm	243.9 to 259.1	253	Pass
H - Head to back line	mm	40.7 to 45.7	45	Pass
I - Shoulder to elbow length	mm	276.8 to 297.2	284	Pass
J - Elbow rest height	mm	182.8 to 203.2	201	Pass
K - Buttock to knee length	mm	520.7 to 546.1	538	Pass
L - Popliteal height	mm	355.6 to 376.0	365	Pass
M - Knee pivot height	mm	393.7 to 419.1	414	Pass
N - Buttock popliteal length	mm	414.0 to 439.4	420	Pass
O - Chest depth without jacket	mm	175.3 to 190.5	183	Pass
P - Foot length	mm	218.5 to 233.7	229	Pass
R - Buttock to knee pivot length	mm	457.2 to 482.6	465	Pass
S - Head breadth	mm	137.1 to 147.3	142	Pass
T - Head depth	mm	177.8 to 188.0	181	Pass
U - Hip breadth	mm	299.7 to 314.9	309	Pass
V - Shoulder breadth	mm	350.5 to 365.7	361	Pass
W - Foot breadth	mm	78.8 to 94.0	90	Pass
X - Head circumference	mm	528.3 to 548.7	542	Pass
Y - Chest circumference with jacket	mm	850.8 to 881.3	853	Pass
Z - Waist circumference	mm	759.5 to 789.9	778	Pass
AA - Location for chest circumference	mm	299.7 to 309.9	301	Pass
BB - Location for waist circumference	mm	160.1 to 170.2	165	Pass
Overall Test Results				Pass

Test Program: Dummy Damage Checklist
 ATD Serial No.: 035

Test Date: 10/25/10
 Test I.D.: N/A



GENERAL	DAMAGED	OK
Outer skin on entire dummy		X
Head ballast secure		X
Gashes, rips, general appearance, etc.		X
Neck-Broken or cracks in rubber		X
Check that upper neck bracket is firmly attached to lwr neck bracket		X
Three rubber bumpers in place		X
Spine- Broken or cracks in rubber		X
Check for looseness at the condyle joint		X
Nodding blocks- cracked or out of position		X
Ribs- Check all ribs and rib supports for damage (bent or broken)		X
Check damping material or separation or cracks		X
OTHER		
CHEST DISPLACEMENT ASSEMBLY		
Bent shaft		X
Slider arm riding correctly, in track		X
TRANSDUCER LEADS		
Torn cables		X
ACCELEROMETER MOUNTINGS		
Check for secure mounting		X
KNEES		
Check outer skin, insert and casting (without removing insert)		X
Knee sliders - Wires intact		X
Knee sliders- Rubber returned to "at rest position"		X
LIMBS		
Check for normal movement and adjustment		X
PELVIS		
Inspect for breakage, especially at iliac crest		X

Comments on repair or replacement parts:

Test Program: Dummy Damage Checklist
 ATD Serial No.: 141

Test Date: 10/25/10
 Test I.D.: N/A



GENERAL	DAMAGED	OK
Outer skin on entire dummy		X
Head ballast secure		X
Gashes, rips, general appearance, etc.		X
Neck-Broken or cracks in rubber		X
Check that upper neck bracket is firmly attached to lwr neck bracket		X
Three rubber bumpers in place		X
Spine- Broken or cracks in rubber		X
Check for looseness at the condyle joint		X
Nodding blocks- cracked or out of position		X
Ribs- Check all ribs and rib supports for damage (bent or broken)		X
Check damping material or separation or cracks		X
OTHER		
CHEST DISPLACEMENT ASSEMBLY		
Bent shaft		X
Slider arm riding correctly, in track		X
TRANSDUCER LEADS		
Torn cables		X
ACCELEROMETER MOUNTINGS		
Check for secure mounting		X
KNEES		
Check outer skin, insert and casting (without removing insert)		X
Knee sliders - Wires intact		X
Knee sliders- Rubber returned to "at rest position"		X
LIMBS		
Check for normal movement and adjustment		X
PELVIS		
Inspect for breakage, especially at iliac crest		X

Comments on repair or replacement parts:
