

NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST

HYUNDAI MOTOR COMPANY
2010 HYUNDAI ACCENT
3-DOOR HATCHBACK

NHTSA NUMBER: MA0518

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DECEMBER 3, 2009

FINAL REPORT

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Technical Report Documentation Page

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16. Abstract A 55/28 km/h 90 deg. Moving Deformable Barrier Side Impact NCAP Test was conducted on the subject 2010 Hyundai Accent 3-Door Hatchback in accordance with the specifications of the Office of Crash Worthiness Standards Test Procedures for the generation of consumer information on vehicle side crash protection. The test was conducted at KARCO Engineering, LLC in Adelanto, CA, on December 3, 2009. The impact velocity of the Moving Deformable Barrier was 61.98 km/h and the outside ambient temperature at the struck (driver's) side of the vehicle was 14.4 deg. C. The target vehicle's maximum post-test static crush was 266 mm located at level 2. The test vehicle's occupant performance data is as follows: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 35%;">Measurement Description</th> <th style="width: 20%;">Driver SID/HIII</th> <th style="width: 20%;">Pass. SID/HIII</th> <th style="width: 25%;"></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) G's</td> <td style="text-align: center;">68.5</td> <td style="text-align: center;">62.1</td> <td rowspan="5" style="background-color: #cccccc;"></td> </tr> <tr> <td>Left Lower Rib (LLR) G's</td> <td style="text-align: center;">64.9</td> <td style="text-align: center;">68.6</td> </tr> <tr> <td>Lower Spine (T₁₂) G's</td> <td style="text-align: center;">65.1</td> <td style="text-align: center;">58.2</td> </tr> <tr> <td>Thoracic Trauma Index (TTI) G's</td> <td style="text-align: center;">67</td> <td style="text-align: center;">63</td> </tr> <tr> <td>Pelvis (PEV) G's</td> <td style="text-align: center;">82.9</td> <td style="text-align: center;">73.9</td> </tr> </tbody> </table>				Measurement Description	Driver SID/HIII	Pass. SID/HIII		Left Upper Rib (LUR) G's	68.5	62.1		Left Lower Rib (LLR) G's	64.9	68.6	Lower Spine (T ₁₂) G's	65.1	58.2	Thoracic Trauma Index (TTI) G's	67	63	Pelvis (PEV) G's	82.9	73.9
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SECTION 1

PURPOSE AND TEST PROCEDURE

1.1 PURPOSE

This Side Impact NCAP test is conducted as part of the FY' 2009 test program sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract No. DTNH22-09-R-00201. The purpose of this test is to generate comparative side impact data on a 2010 Hyundai Accent 3-Door Hatchback manufactured by Hyundai Motor Company.

1.2 TEST PROCEDURE

The side impact test was conducted in accordance with the current National Highway Traffic Safety Administration (NHTSA), Office of Crashworthiness Standards (OCS), laboratory test procedure NCAP Side Impact Testing, dated November 2002. The procedures for receiving, inspection, testing, and reporting of test results are described in the test procedures and are not repeated in this report.

SECTION 2

SUMMARY OF SIDE IMPACT TEST

2.1 SUMMARY OF SIDE IMPACT NCAP TEST

A model year 2010 Hyundai Accent 3-Door Hatchback was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 61.98 km/h. The specified impact velocity range is from 61.14 to 62.75 km/h. The test (target) vehicle was stationary and positioned 63° to the line of forward motion. The weight of the vehicle as tested was 1309.0 kg and the test weight of the MDB was 1361.0 kg. The test was conducted at KARCO Engineering, LLC in Adelanto, California, on December 3, 2009.

Two (2) real-time cameras and ten (10) high-speed video cameras were used to document the impact event. Camera locations and pertinent camera information is documented in the data sheets. Pre- and post-test photographs of the vehicle and SID/HIIIs can be found in Appendix A. Two 50th percentile adult male Side Impact Dummies, Hybrid III (SID/HIIIs) were placed in the driver's and left rear passenger designated seating positions according to the test procedure. Each SID/HIII is instrumented with contact switches on the pelvis, thorax and six-axis neck load cells, and fourteen accelerometers in the following locations:

- Left Upper Rib (LUR) uni-axial accelerometer (Y-axis primary and redundant)
- Left Lower Rib (LLR) uni-axial accelerometer (Y-axis primary and redundant)
- Lower Thoracic Spine (T12) uni-axial accelerometer (Y-axis primary and redundant)
- Pelvic (PEV) section uni-axial accelerometer (Y-axis primary and redundant)
- Head Center of Gravity (CG) tri-axial accelerometers (X, Y, and Z axes primary and redundant)

Restraint Type	Left Front (Driver)		Left Rear (Passenger)	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	No	No	
Knee Airbag	No		No	
Side Torso Airbag	Yes	Yes	No	
Side Pelvis Airbag	No		No	
Curtain Airbag	Yes	Yes	Yes	Yes

SECTION 2...(CONTINUED)

The test vehicle was instrumented with twelve (12) structural accelerometers and the MDB was instrumented with five (5) accelerometers and one (1) contact switch on the right bumper to compare left side to right side bumper impact timing. All data channels were recorded with the fully self contained on-board Data Acquisition System (DAS). The data was digitally sampled at 10,000 samples per second and processed per Appendix V of the Test Procedure.

2.2 GENERAL COMMENTS

Both the driver and passenger doors remained closed during the impact. The test vehicle sustained a maximum static crush of 266 mm at level 2, 450 mm rearward of the left vertical impact point. The driver SID/Hybrid III, Serial No. 275 and the passenger SID/Hybrid III, Serial No. 274 were calibrated prior to this test. The SID/Hybrid III injury criteria are summarized as follows:

Measurement	Units	Driver	Passenger
Thoracic Trauma Index (TTI)	G's	67	63
Peak Pelvic G's (PEV)	G's	83	74

Tests summaries and post-test observations are presented in Section 3. Appendix A contains the still photograph prints. Appendix B contains the driver and passenger SID/HIIIs, vehicle, and MDB response data traces. Appendix C contains the SID Configuration and performance verification data.

SECTION 3

OCCUPANT AND VEHICLE INFORMATION SHEETS

Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback

NHTSA No.: MA0518

Test Program: 55/28 km/h Side Impact NCAP

Test Date: 12/03/09

CONVERSION FACTORS USED IN THIS REPORT*

Quantity	Typical Application	Std Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	mile/h	km/h	1.609344
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.573
Pressure	Tire Pressures	lbf/in ²	kPa	7.0
Volume	Liquid	gal	liter	3.785
Temperature	General Use	°F	°C	$=(t_f - 32)/1.8$
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf/ft	Nm	1.355

* Based on the Recommended Practice in SAE J916, May 85

DATA SHEET NO. 1**GENERAL TEST AND VEHICLE PARAMETER DATA**Test Vehicle: 2010 Hyundai Accent 3-Door HatchbackNHTSA No.: MA0518Test Program: 55/28 km/h Side Impact NCAPTest Date: 12/03/09**TEST VEHICLE INFORMATION AND OPTIONS**

NHTSA No.	MA0518
Make	Hyundai
Model	Accent
Body Style	3-Door Hatchback
Vin No.	KMHCM3AC7AU150740
Color	White
Delivery Date	11/6/2009
Odometer (Miles)	8
Dealer	Northtown Hyundai
Transmission	5-Speed Manual
Final Drive	Front
Type/No. Cyl.	Inline-4
Engine Disp. (L)	1.6
Engine Placement	Transverse
Roof Rack	No
Sunroof/T-Top	No
Tinted Glass	No
Traction Control	No
Power Brakes	Yes
Front Disc	Yes
Rear Disc	No
Anti-Lock Brakes	No

All Wheel Drive	No
Power Steering	Yes
Driver Front Airbag	Yes
Driver Knee Airbag	No
Driver Side Pelvis Airbag	No
Driver Side Torso Airbag	Yes
Driver Side Head Airbag	No
Driver Curtain/Airbag	Yes
Rear Pass. Front Airbag	No
Rear Pass. Side Pelvis Airbag	No
Rear Pass. Side Torso Airbag	No
Rear Pass. Head Airbag	No
Rear Pass. Curtain Airbag	Yes
Pre-Tensioners	Yes
Load Limiters	Yes
Bucket Seats	Yes
AM/FM CD	No
Tilt Steering	No
Automatic Door Locks	No
Power Windows	No
Power Seats	No
Other	See Below

Other: Tire Pressure Monitoring System

Does Owners Manual provide instructions to turn off automatic door locks.

N/A

DATA FROM CERTIFICATION LABEL

Manufactured By	Hyundai Motor Company
Date of Manufacture	Jun-09

GVWR (kg)	1650
GAWR Front (kg)	870
GAWR Rear (kg)	850

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

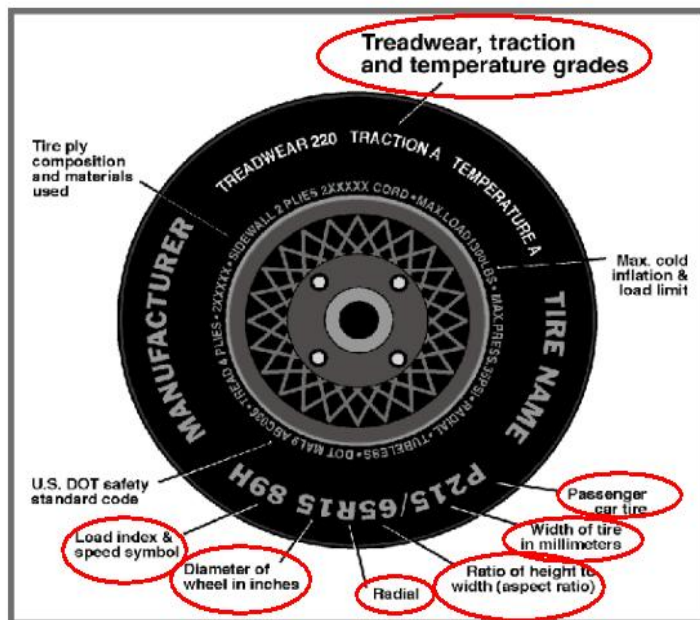
Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback

NHTSA No.: MA0518

Test Program: 55/28 km/h Side Impact NCAP

Test Date: 12/03/09

Collect year, make, model, VIN, items circled in red, and tire manufacturer and tire name.



TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	300	300
Cold Pressure (kpa)	220	220
Recommended Tire Size	P175/70/R14	P175/70/R14
Tire Size on Vehicle	P175/70/R14	P175/70/R14
Tire Manufacturer	Kumho	Kumho
Tire Model	Solus KH16	Solus KH16
Treadwear	440	440
Traction	AA	AA
Temperature Grades	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	Steel 2, Polyester 1	Steel 2, Polyester 1
Load Index/Speed Symbol	84T	84T
Tire Material	Steel, Polyester	Steel, Polyester
DOT Safety Code Right	C0F9 YP5M 2109	C0F9 YP5M 2109
DOT Safety Code Left	C0F9 YP5M 2109	C0F9 YP5M 2109

DATA SHEET NO. 1...(CONTINUED)**GENERAL TEST AND VEHICLE PARAMETER DATA**Test Vehicle: 2010 Hyundai Accent 3-Door HatchbackNHTSA No.: MA0518Test Program: 55/28 km/h Side Impact NCAPTest Date: 12/03/09**TEST VEHICLE WEIGHTS**

	Units	As Delivered Weights (UWV)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	361.0	209.0	570.0	405.5	293.5	699.0
Right	kg	327.5	210.5	538.0	351.5	258.5	610.0
Ratio	%	62.1	37.9	100.0	57.8	42.2	100.0
Total	kg	688.5	419.5	1108.0	757.0	552.0	1309.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UWV)	kg	1108.0
Weight of 2 P572 ATDs	kg	163.0
Rated Cargo/Luggage Wt (RCLW)	kg	44.8
Calculated Vehicle Target Wt (TVTW)	kg	1315.8

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG Aft of Front Axle
As Delivered	mm	649	651	652	652	946
As Tested	mm	635	645	620	625	1054
Fully Loaded	mm	631	645	612	622	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2499
Total Vehicle Length at Left Side	mm	2798
Total Vehicle Length at Centerline	mm	3946
Total Vehicle Length at Right Side	mm	2799
Weight of Ballast in Cargo Area	kg	0
Amount of Stoddard Solvent Added	L	41.9

TEST VEHICLE VERTICAL IMPACT LINE DATA

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2499
Target Impact Point Aft of Front Axle	mm	308
Actual Impact Point Aft of Front Axle	mm	321

DATA SHEET NO. 1...(CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback

NHTSA No.: MA0518

Test Program: 55/28 km/h Side Impact NCAP

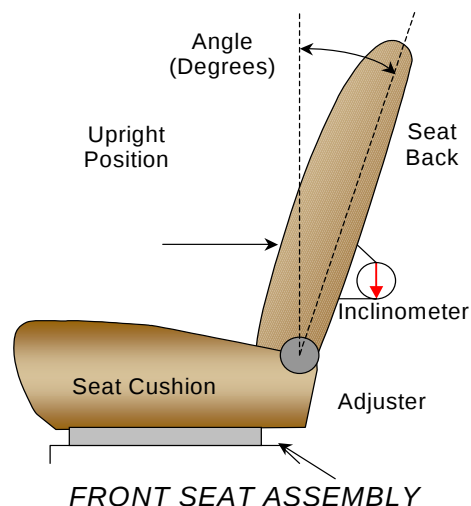
Test Date: 12/03/09

NOMINAL DESIGN RIDING POSITION

The driver and passenger seat backs are positioned using the manufacturer's designated angle as a reference angle. The procedure is as follows: angle was measured at the seat back using a digital inclinometer.

SEAT BACK ANGLES

	Deg.
Driver w/seated Dummy	24.8° @ Seatback
Passenger w/seated Dummy	26.5° @ Seatback

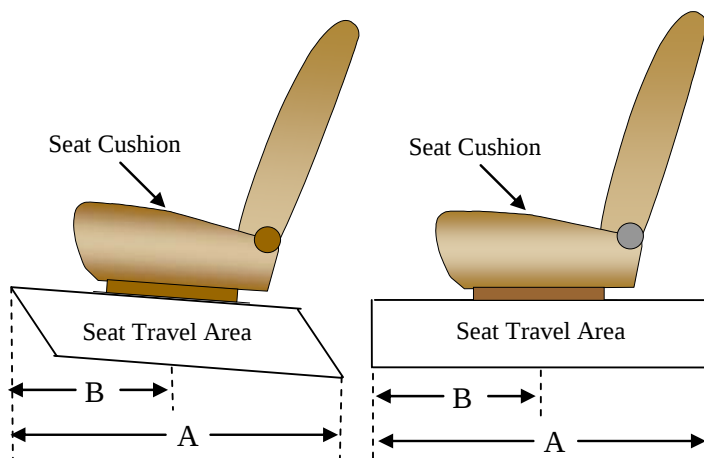


SEAT FORE/AFT POSITIONS

Total seat travel was measured from forward most position to rearmost position possible. The driver seat was set at the longitudinal mid position. The passenger seat was fixed. There were vertical adjustments on the driver seat that was equipped with the vehicle. There were no vertical adjustments on the passenger seat. The driver seat was placed at the lowermost position.

SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel	Placed in Position #
Driver Seat	218 mm	109 mm
Rear Seat	Fixed	Fixed



SEAT BELT UPPER ANCHORAGE

Position number one (1) is the uppermost position

SEAT BELT UPPER ANCHORAGE

	Total # of Positions	Placed in Position #
Driver Seat	4	1
Rear Seat	Fixed	Fixed

DATA SHEET NO. 1...(CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback

NHTSA No.: MA0518

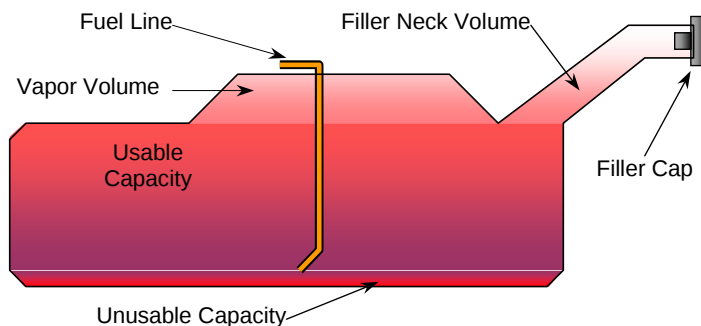
Test Program: 55/28 km/h Side Impact NCAP

Test Date: 12/03/09

FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank"	45.04
Usable Capacity of "Optional" Tank	
Allowable Capacity used for FMVSS 301	41.44 to 42.34
Actual Amount of Solvent used	41.85

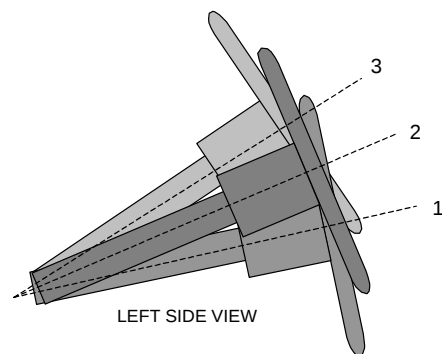
The test vehicle is equipped with an electric fuel pump. The fuel pump will operate when the key is in the start position or when the engine is activated. The fuel filler door is located on the left rear fender. The standard fuel tank occupies the area under the rear seat.



VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

Steering column was fixed.



STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONS

Description	Tilt Angle (°)	Fore/Aft Position (mm)
Lowermost position No. 1		
Geometric center position No. 2		
Uppermost position No. 3		

DATA SHEET NO. 2**TEST VEHICLE SUMMARY OF RESULTS**Test Vehicle: 2010 Hyundai Accent 3-Door HatchbackNHTSA No.: MA0518Test Program: 55/28 km/h Side Impact NCAPTest Date: 12/03/09**TEST VEHICLE WEIGHTS**

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	361.0	209.0	570.0	405.5	293.5	699.0
Right	kg	327.5	210.5	538.0	351.5	258.5	610.0
Ratio	%	62.1	37.9	100.0	57.8	42.2	100.0
Total	kg	688.5	419.5	1108.0	757.0	552.0	1309.0

MAXIMUM EXTERIOR STATIC CRUSH

Level	Measured Parameter	Units	Maximum Crush	Above Ground
Level 1	Sill Top Height	mm	111	255
Level 2	Occupant H-Point	mm	266	523
Level 3	Mid Door	mm	243	637
Level 4	Window Sill	mm	201	907
Level 5	Window top	mm	16	1411
N/A	Maximum Penetration	mm	266	

INSTRUMENTATION

Driver SID/Hybrid III Accelerometers	20
Passenger SID/Hybrid III Accelerometers	20
Vehicle Structure Accelerometers	21
MDB Accelerometers	5
Total No. of Contact Switches	5
Total	71

CAMERA COVERAGE

High Speed, Vehicle On-Board	3
High Speed, Off-Board	5
High Speed, MDB On-Board	2
Real Time, Panning	1
Total	11

DATA SHEET NO. 3**MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS**Test Vehicle: 2010 Hyundai Accent 3-Door HatchbackNHTSA No.: MA0518Test Program: 55/28 km/h Side Impact NCAPTest Date: 12/03/09**MDB SPECIFICATIONS (mm)**

Measurement Description	Length
Overall Width of Framework Carriage	1252
Overall Length including Honeycomb Face	4115
Wheel Base of Framework Carriage	2590
C.G. location aft of Front Axle	1127

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	384	308	
Right	kg	385	284	
Ratio	%	56.5	43.5	
Totals	kg	769	592	1361

SPEED AND IMPACT DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	61.98
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	61.93
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	89.5

MAXIMUM STATIC CRUSH OF HONEYCOMB FACE (mm)

Vertical Location			From Centerline		Max. Crush
Row	Description	Height	Distance	Direction	
A	Center of Bumper	432	800	Left	631
B	Top of Bumper	533	800	Left	688
C	Mid Level	686	800	Left	739
D	Top of Stack	813	800	Left	784

MDB INSTRUMENTATION AND CAMERAS

Accelerometers	5
Contact Switches	1
High Speed Cameras	2

DATA SHEET NO. 4
POST-TEST OBSERVATIONS

Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback

NHTSA No.: MA0518

Test Program: 55/28 km/h Side Impact NCAP

Test Date: 12/03/09

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat SID/Hybrid III	Rear Seat SID/Hybrid III
Dummy Type/Serial No.	P572F, SID/No. 275	P572F, SID/No. 274
Head Contact	Curtain Airbag, Headrest	Curtain Airbag, Headliner, Side Header, Headrest
Upper Torso Contact	Side Airbag, Door Panel	Door Panel
Lower Torso Contact	Door Panel	Door Panel
Left Knee Contact	Door Panel	Panel on B-Pillar, Right Knee
Right Knee Contact	None	Left Knee

POST-TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Left Side Door Opening	Remained closed and latched, jammed	
Right Side Door Opening	Remained closed and latched, operational.	
Seat Movement	None	None
Seatback Failure	None	None

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No separation occurred.
Sill Separation	No separation occurred.
Windshield Damage	None
Window Damage	Left front window broken
Other Notable Effects	Driver door max separation 77mm, driver door skin partially separated.

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 2	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	No	No	
Knee Airbag	No		No	
Side Torso Airbag	Yes	Yes	No	
Side Pelvis Airbag	No		No	
Head Airbag	No		No	
Curtain Airbag	Yes	Yes	Yes	Yes
Pre-Tensioners	Yes	Yes	No	
Load Limiters	Yes	Yes	No	

MDB LEFT EDGE IMPACT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	+13 (Right)
Vertical Offset	mm	+/-20	-3 (Down)

DATA SHEET NO. 5

VEHICLE PRE-TEST AND POST-TEST MEASUREMENTS

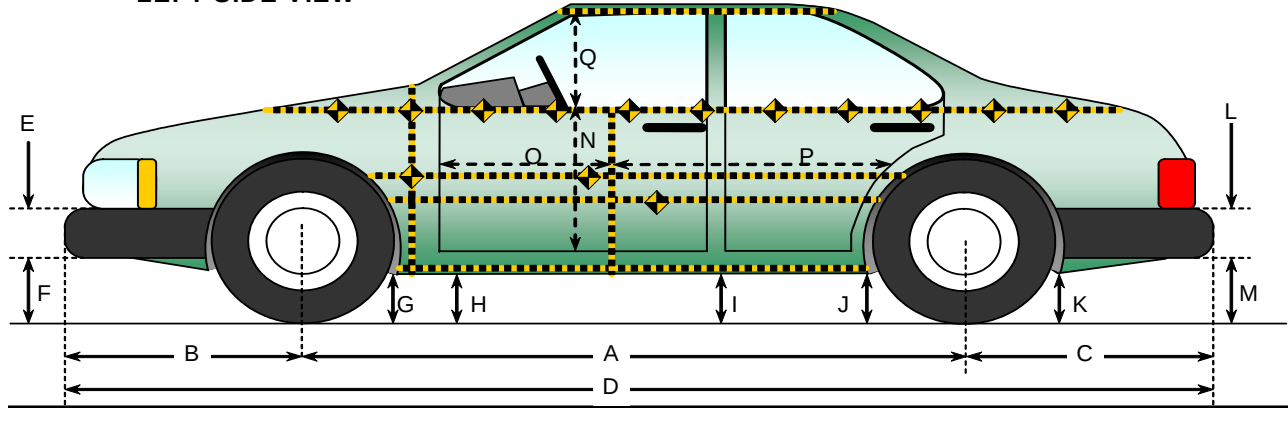
Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback

NHTSA No.: MA0518

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Test Date: 12/03/09

LEFT SIDE VIEW



VEHICLE PRE AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2499	2499	0
B	Front Axle to FSOV	843	847	4
C	Rear Axle to RSOV	604	585	-19
D	Total Length at Centerline	3946	3931	-15
E	Front Bumper Thickness	181	177	-4
F	Front Bumper Bottom to Ground	332	354	22
G	Sill Height at Front Wheel Well	212	508	296
H	Sill Height at Front Door Leading Edge	276	353	77
I	Sill Height at "B" Pillar	232	344	112
J1	Sill Height at Rear Wheel Well	224	305	81
J2	Pinch Weld Height at Rear Wheel Well	186	248	62
K	Sill Height aft of Rear Wheel Well	450	500	50
L	Rear Bumper Thickness	179	177	-2
M	Rear Bumper Bottom to Ground	369	428	59
N	Sill Height to Window Bottom Sill	605	517	-88
O	Front Door Leading Edge to Impact CL	153	180	27
P	Rear Door Trailing Edge to Impact CL	1870	1867	-3
Q	Front Window Opening	449	486	37
R	Right Side Length	2799	2750	-49
S	Left Side Length	2798	2800	2
T	Vehicle Width at "B" Post	1690	1508	-182

All dimensions shown in millimeters

DATA SHEET NO. 6

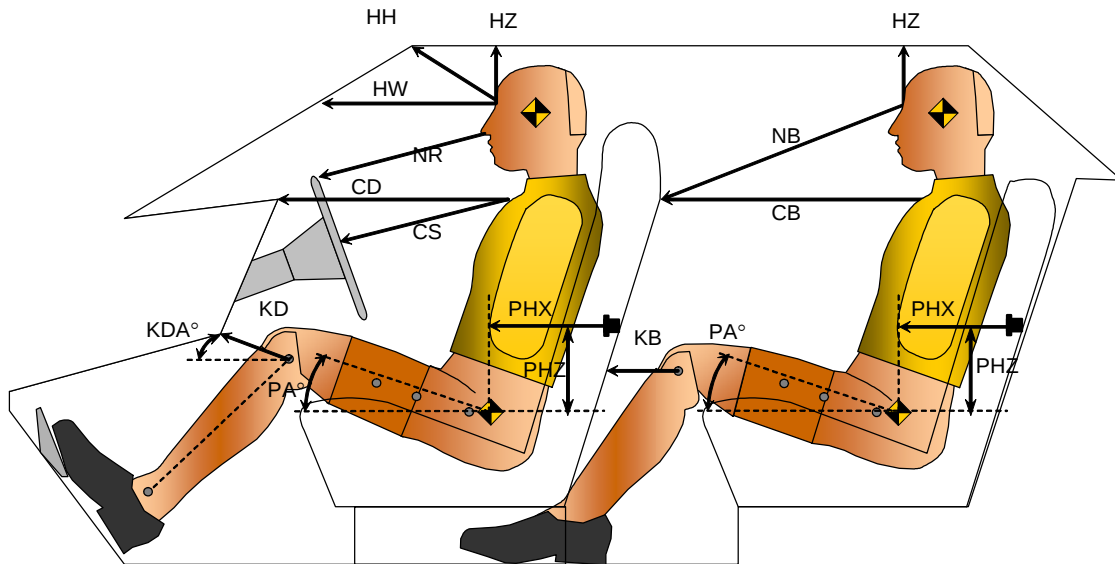
SID/HIII LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback

NHTSA No.: MA0518

Test Program: 55/28 km/h Side Impact NCAP

Test Date: 12/03/09



DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Driver Code	Pass. Code	Measurement Description	Driver		Passenger	
			Length (mm)	Angle (°)	Length (mm)	Angle (°)
HH		Head to Header	401	14.5		
HW		Head to Windshield	594	0.0		
HZ	HZ	Head to Roof	184	90.0	164	90.0
NR	NB	Nose to Rim/Nose to Seat Back	491	14.6	552	19.8
CD	CB	Chest to Dash or Seat Back	553	0.4	497	0.0
CS		Chest to Steering Wheel	382	16.3		
KDL	KBL	Left Knee to Dash or Seat Back	172	27.2	163	22.1
KDR	KBR	Right Knee to Dash or Seat Back	144	28.8	154	25.8
PA	PA	Pelvic Angle		23.2		21.3
PHX	PHX	H-Point to Striker (X-Axis)	450			
PHZ	PHZ	H-Point to Striker (Z-Axis)	143			

All dimensions shown in millimeters

¹ COTR and manufacturer's representative approved pelvis angle outside of tolerance.

DATA SHEET NO. 7

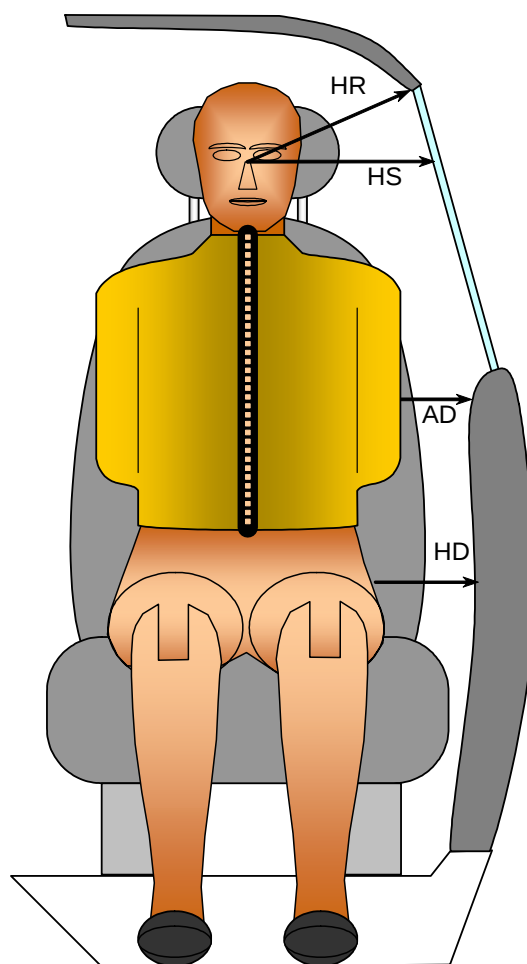
SID/HII LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback

NHTSA No.: MA0518

Test Program: 55/28 km/h Side Impact NCAP

Test Date: 12/03/09



FRONT VIEW OF DUMMY

LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver	Passenger
HR	Head to Side Header	mm	196	229
HS	Head to Side Window	mm	310	315
AD	Arm to Door	mm	95	97
HD	H-Point to Door	mm	124	159

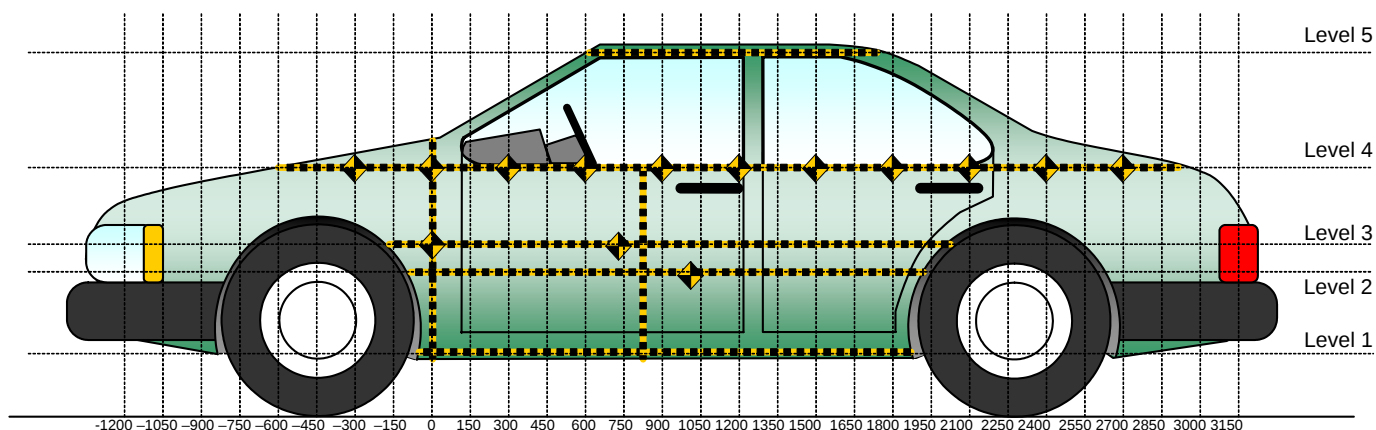
DATA SHEET NO. 8 **VEHICLE SIDE MEASUREMENTS**

Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback

NHTSA No.: MA0518

Test Program: 55/28 km/h Side Impact NCAP

Test Date: 12/03/09



All Measurements Shown in mm

LEFT SIDE VIEW

Measurements are taken with vehicle in the as tested condition.

Measurements taken 900 mm right of impact reference.

All measurements below in mm.

Level	Measurement Description	Height Above Ground
1	Sill Top	255
2	Occupant H-Point	523
3	Mid Door	637
4	Window Sill	907
5	Window Top	1411

All dimensions shown in millimeters

DATA SHEET NO. 9

VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback

NHTSA No.: MA0518

Test Program: 55/28 km/h Side Impact NCAP

Test Date: 12/03/09

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600															
-450															
-300			653	844				651	850				-2	6	
-150			655	790				637	796				-18	6	
0		657	665	759			759	656	752			102	-9	-7	
150	712	665	667	744		571	911	855	766		-141	246	188	22	
300	710	663	664	735		804	923	878	825		94	260	214	90	
450	708	662	662	723		805	928	873	853		97	266	211	130	
600	706	661	660	716		807	922	870	881		101	261	210	165	
750	705	661	658	711		808	917	867	896		103	256	209	185	
900	705	660	657	706		811	909	864	894		106	249	207	188	
1050	705	660	657	701	948	814	900	860	893	960	109	240	203	192	12
1200	706	660	657	698	945	816	889	859	893	961	110	229	202	195	16
1350	708	661	657	697	945	819	874	849	871	961	111	213	192	174	16
1500	710	663	658	697	947	806	913	885	898	963	96	250	227	201	16
1650	712	664	659	698	954	791	929	897	893	967	79	265	238	195	13
1800	715	666	661	699	969	769	905	904	852	976	54	239	243	153	7
1950		656	660	703			800	822	803			144	162	100	
2100			650	709				742	744				92	35	
2250			654	717				705	734				51	17	
2400			675	731				695	735				20	4	
2550				756					749					-7	
2700															
2850															
3000															

All dimensions shown in millimeters.

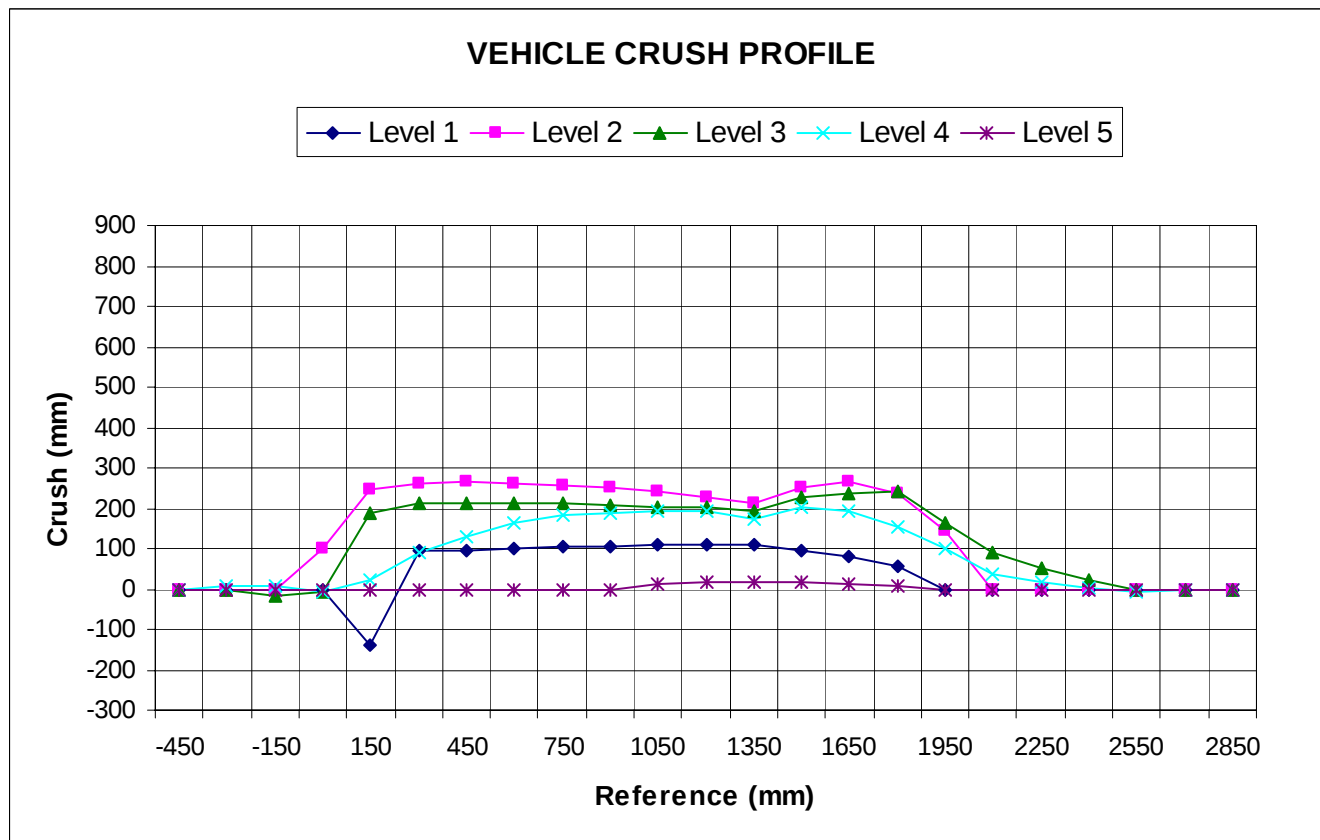
DATA SHEET NO. 9...(CONTINUED)
VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback

NHTSA No.: MA0518

Test Program: 55/28 km/h Side Impact NCAP

Test Date: 12/03/09



DATA SHEET NO. 10

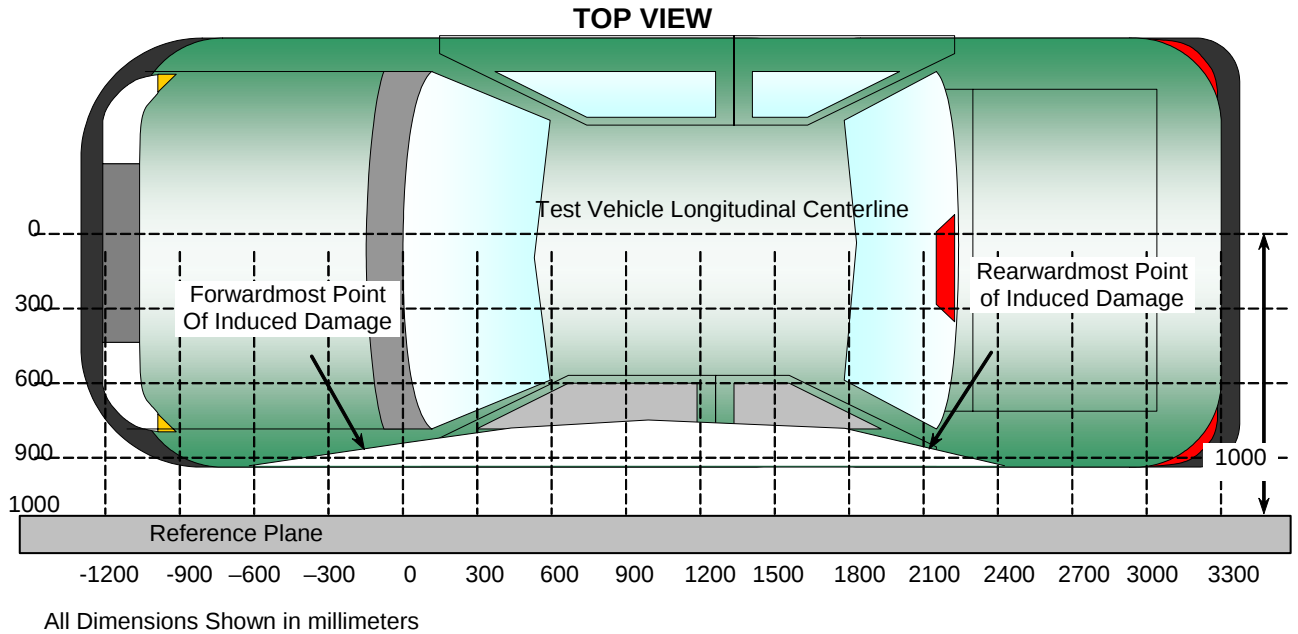
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback

NHTSA No.: MA0518

Test Program: 55/28 km/h Side Impact NCAP

Test Date: 12/03/09



DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max. Static Crush (mm)
1	2250	3	654	705	51
2	1800	3	661	904	243
3	1350	2	661	874	213
4	900	2	660	909	249
5	450	2	662	928	266
6	0	2	657	759	102

DATA SHEET NO. 11

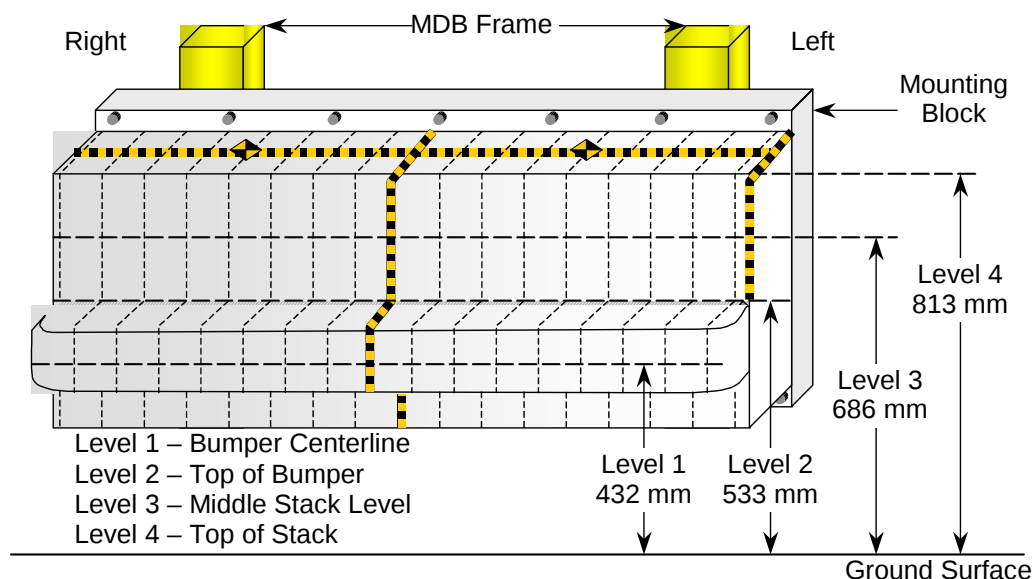
DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback

NHTSA No.: MA0518

Test Program: 55/28 km/h Side Impact NCAP

Test Date: 12/03/09



DEFORMABLE BARRIER STATIC CRUSH

Stack Level	Distance Right of Center								C/L	Distance Left of Center							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
1	631	598	594	592	591	586	584	586	591	588	592	593	596	601	612	625	631
2	666	660	659	653	656	654	654	649	651	656	661	667	666	670	677	684	688
3	651	632	634	657	663	647	631	626	626	655	625	626	663	639	648	692	739
4	687	657	650	672	676	678	658	636	634	636	635	635	647	671	691	731	784

All Dimensions in mm

DATA SHEET NO. 12

VEHICLE ACCELEROMETER LOCATIONS

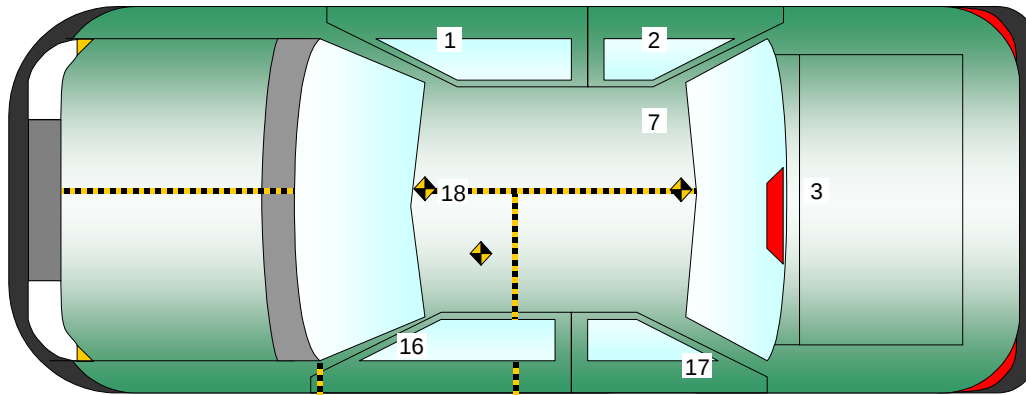
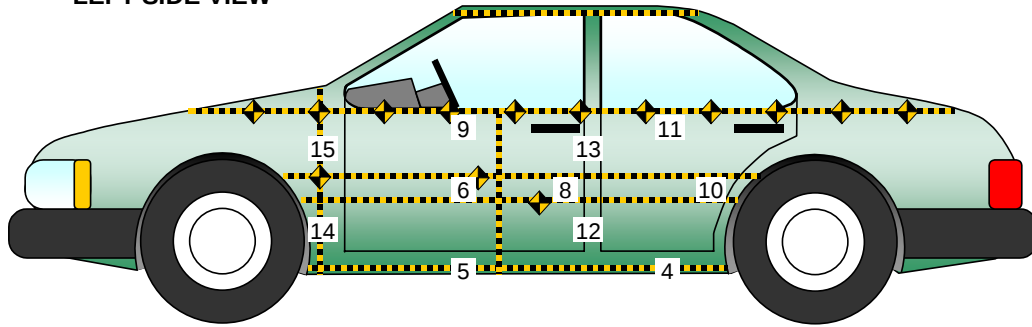
Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback

NHTSA No.: MA0518

Test Program: 55/28 km/h Side Impact NCAP

Test Date: 12/03/09

LEFT SIDE VIEW



No.	Location
1	Right Sill at Front Seat
2	Right Sill at Rear Seat
3	Rear Floorpan Above Axle
4	Left Sill at Rear Door
5	Left Sill at Front Door
6	Left Front Door Centerline
7	Right Rear Occupant Compartment
8	Left Front Door Mid-Rear
9	Left Front Door Upper Centerline

No.	Location
10	Left Rear Door Mid-Rear
11	Left Rear Door Upper Centerline
12	Left Lower B-Post
13	Left Middle B-Post
14	Left Lower A-Post
15	Left Middle A-Post
16	Front Seat Track
17	Rear Seat Track or Structure
18	Vehicle CG

DATA SHEET NO. 12...(CONTINUED)

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback

NHTSA No.: MA0518

Test Program: 55/28 km/h Side Impact NCAP

Test Date: 12/03/09

VEHICLE ACCELEROMETER LOCATIONS

Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Right Sill at Front Seat	-1040	-695	310
2	Right Sill at Rear Seat	-1420	-690	310
3	Rear Floorpan Above Axle	-2530	-520	470
4	Left Sill at Rear Door	-1970	4307	95
5	Left Sill at Front Door	-1170	740	95
6	Front Door Centerline			1
7	Rt. Rear Occ. Compartment	-1460	-350	220
8	Front Door Mid-Rear			1
9	Front Door Upper Centerline			1
10	Rear Door Mid-Rear			1
11	Rear Door Upper Centerline			1
12	B-Post Lower			1
13	B-Post Middle			1
14	A-Post Lower	-470	810	530
15	A-Post Middle	-470	810	730
16	Front Seat Track	-1210	530	380
17	Rear Seat Structure			1
18	Vehicle CG	-1590	0	340

Reference Planes: X=From Front Axle, Y=Vehicle Centerline, Z=Ground Plane

DATA SHEET NO. 13

MDB ACCELEROMETER LOCATION S

Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback

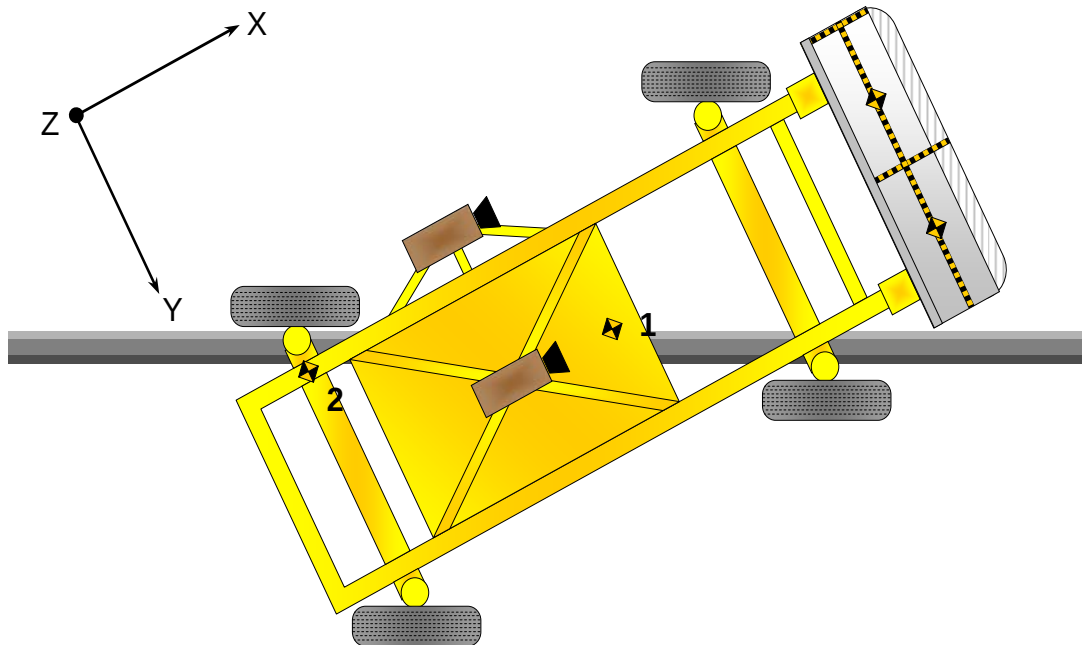
NHTSA No.: MA0518

Test Program: 55/28 km/h Side Impact NCAP

Test Date: 12/03/09

Loc. No.	Accelerometer Locations	Measurements (mm)		
		X	Y	Z
1	MDB CG	-1195	0	430
2	MDB Rear	-2642	-593	608

Reference Points:
X - MDB Front Axle
Y - MDB Centerline
Z - Ground Plane



DATA SHEET NO. 14

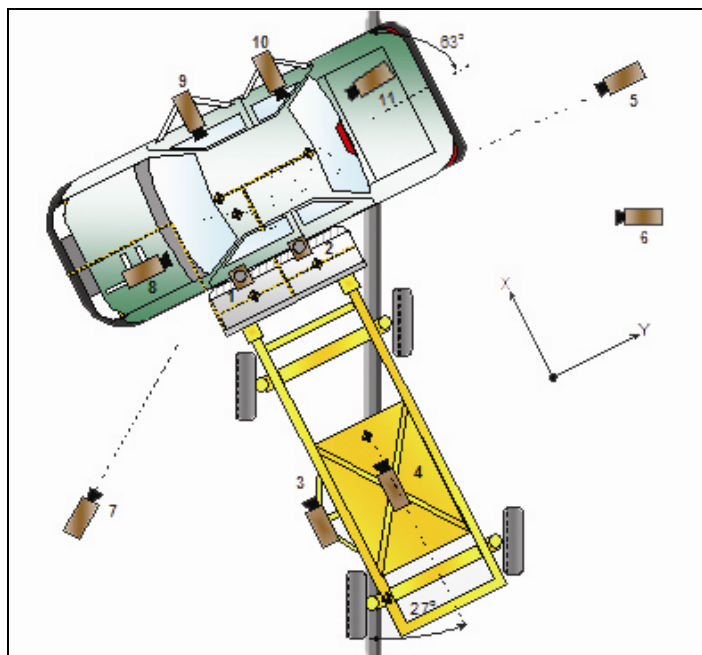
HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback

NHTSA No.: MA0518

Test Program: 55/28 km/h Side Impact NCAP

Test Date: 12/03/09



No.	Camera View	Location			Angle (deg)	Lens (mm)	Film Speed
		x	y	z			
Doc	Real Time Inrun	-2484	-3958	-1506	0		30
Doc	Real Time Left Front	-2266	3549	-1475	-2		30
1	Overhead Overall	1220	2287	-5486	-90	14	1000
2	Overhead Close-Up	609	2287	-5102	-90	Zoom	1000
3	Left Impact Point (MDB)	-2134	0	-1143	-2	12	1000
4	Side Overall (MDB)	-3912	838	-1829	-4	15	1000
5	Rear	-64	20485	-1348	0	105	1000
6	Left Rear (MDB)	-2137	-1302	-339	-4	85	1000
7	Left Front	-2266	-3564	-1475	-2	24	1000
8	Driver Front (O.B.)	248	-626	-1119	-7	35	1000
9	Driver Side (O.B.)	-932	-2095	-1072	-6	20	1000
10	Passenger Side (O.B.)	-876	-2904	-510	-5	20	1000

All measurements are made relative to the point of impact.

DATA SHEET NO. 15

FMVSS 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback NHTSA No.: MA0518

Test Program: 55/28 km/h Side Impact NCAP Test Date: 5/08/09

Test Time: 11:42 AM Temperature: 14.4 Deg. C.

Stoddard Solvent Spillage Measurements

- A. From impact until vehicle motion ceases: 0.0 oz.
(Maximum Allowable = 1 ounce)
- B. For the 5 minute period after motion ceases: 0.0 oz.
(Maximum Allowable = 5 ounces)
- C. For the following 25 minutes: 0.0 oz.
(Maximum Allowable = 1 oz./minute)
- D. Spillage Details: No leakage occurred

DATA SHEET NO. 16

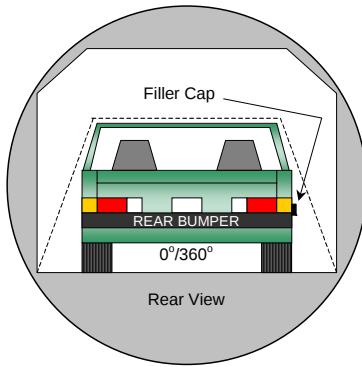
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback

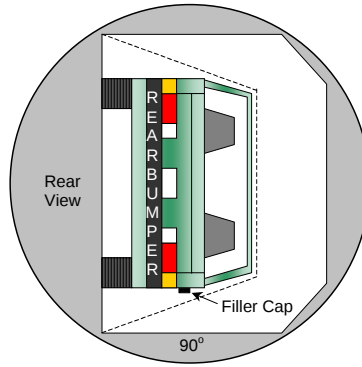
NHTSA No.: MA0518

Test Program: 55/28 km/h Side Impact NCAP

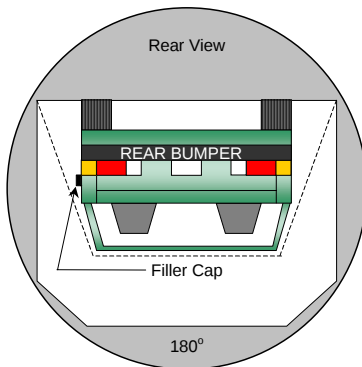
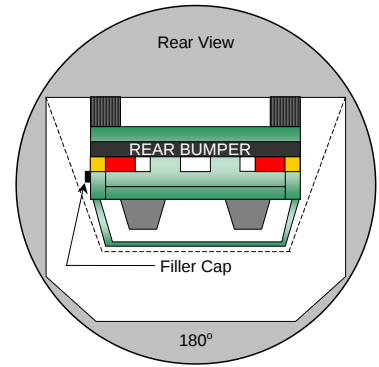
Test Date: 12/03/09



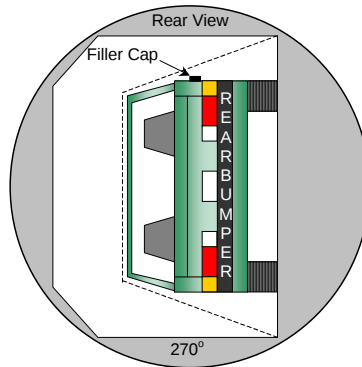
0° to 90°



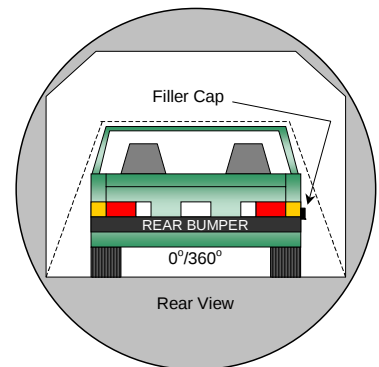
90° to 180°



180° to 270°



270° to 360°



1. The specified fixture rollover rate for each 90° of rotation is 60 to 120 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard Solvent spillage locations.
No solvent leakage occurred during static rollover testing.

DATA SHEET NO. 16...(CONTINUED)**FMVSS 301 STATIC ROLLOVER DATA SHEET**Test Vehicle: 2010 Hyundai Accent 3-Door HatchbackNHTSA No.: MA0518Test Program: 55/28 km/h Side Impact NCAPTest Date: 12/03/09**FMVSS 301 ROLLOVER TIME TABLE (SECONDS)**

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	81	300	381
90° to 180°	84	300	384
180° to 270°	79	300	379
270° to 360°	81	300	381

FMVSS 301 SPILLAGE TABLE REQUIREMENT (oz.)

First 5 Minutes	5.0
Sixth Minute	1.0
Seventh Minute	1.0
Eighth Minute	1.0

FMVSS 301 SOLVENT COLLECTED

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. 17

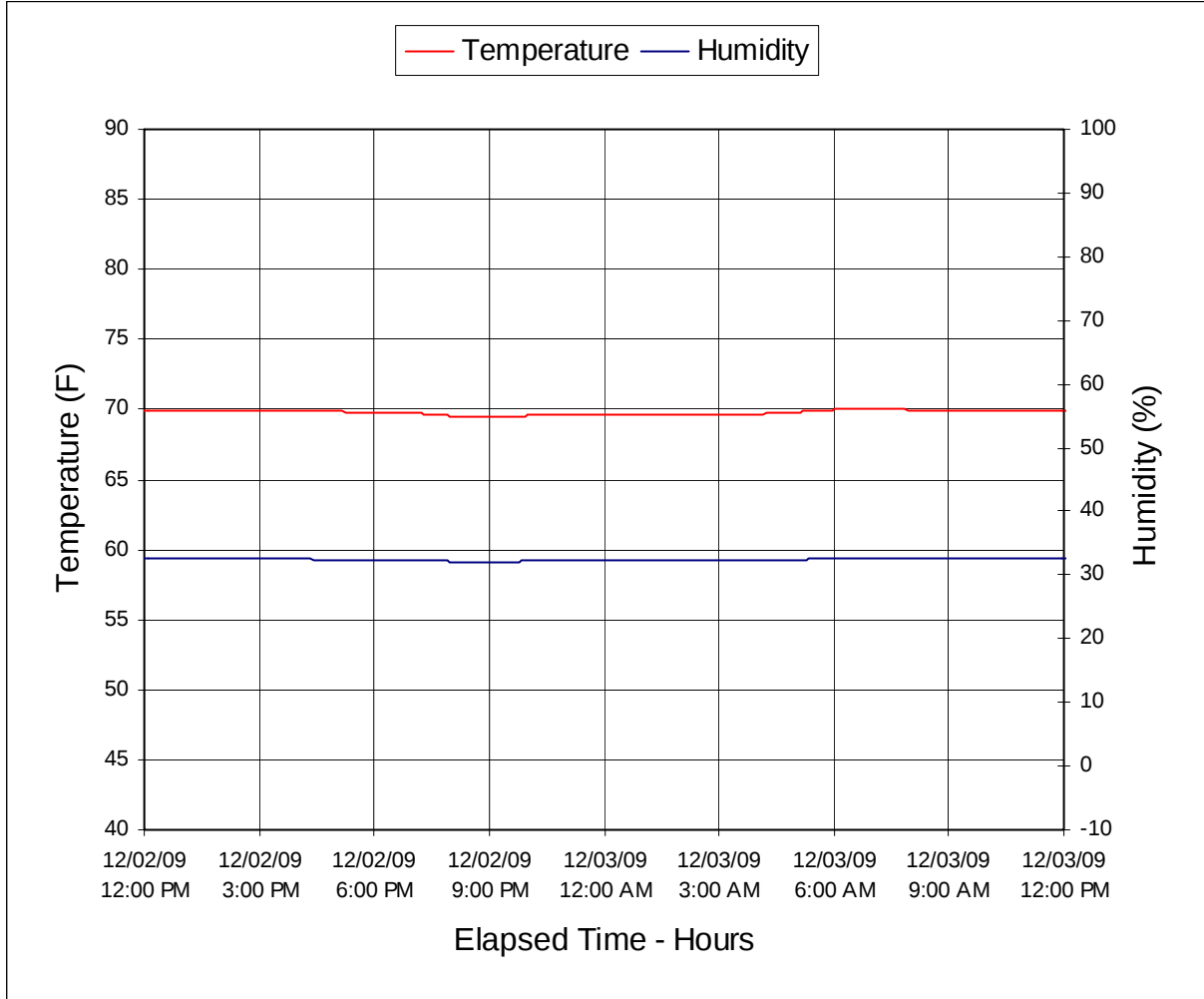
DUMMY / VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback

NHTSA No.: MA0518

Test Program: 55/28 km/h Side Impact NCAP

Test Date: 12/03/09



APPENDIX A
PHOTOGRAPHS

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Figure A-1: Right Front $\frac{3}{4}$ View, as Received



Figure A-2: Left Rear $\frac{3}{4}$ View, as Received



MANUFACTURED IN KOREA BY
HYUNDAI MOTOR COMPANY

JUN/15/09

GVWR 3638 lbs

PAINT NW

GAWR
FRONT

1918 lbs

GAWR
REAR

1874 lbs

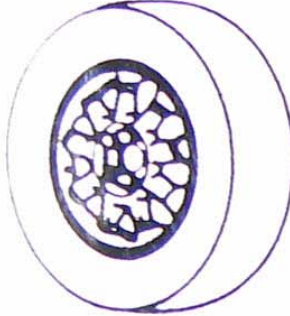
TRIM WK

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S.A. FEDERAL
MOTOR VEHICLE SAFETY, BUMPER, AND THEFT PREVENTION STANDARDS
IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

V.I.N. KMHCM3AC7AU150740

PASSENGER CAR

Figure A-3: Manufacturer's Label



TIRE AND LOADING INFORMATION PNEUS ET CHARGE-INFORMATION

SEATING CAPACITY	TOTAL 5	FRONT 2	REAR 3
NOMBRE DE SIÈGES	TOTAL 5	AVANT 2	ARRIÈRE 3

The combined weight of occupants and cargo should never exceed 385kg or 849lbs.
Le poids combiné des occupants et du chargement ne doit jamais excéder 385kg ou 849lb.

TIRE/ PNEU	SIZE / DIMENSION	COLD TIRE PRESSURE / PRESSION À FROID
FRONT/ AVANT	P175/70R14	220kPa, 32PSI
REAR/ ARRIÈRE	P175/70R14	220kPa, 32PSI
SPARE/ SECOURS	T115/70D15	420kPa, 60PSI

**SEE OWNER'S MANUAL FOR
ADDITIONAL INFORMATION**

**CONSULTER LE GUIDE DU
PROPRIÉTAIRE POUR OBTENIR
DES RENSEIGNEMENTS
ADDITIONNELS**

Figure A-4: Tire Placard



Figure A-5: Pre-Test Front View



Figure A-6: Post-Test Front View



Figure A-7: Pre-Test Left Front 3/4 View



Figure A-8: Post-Test Left Front $\frac{3}{4}$ View

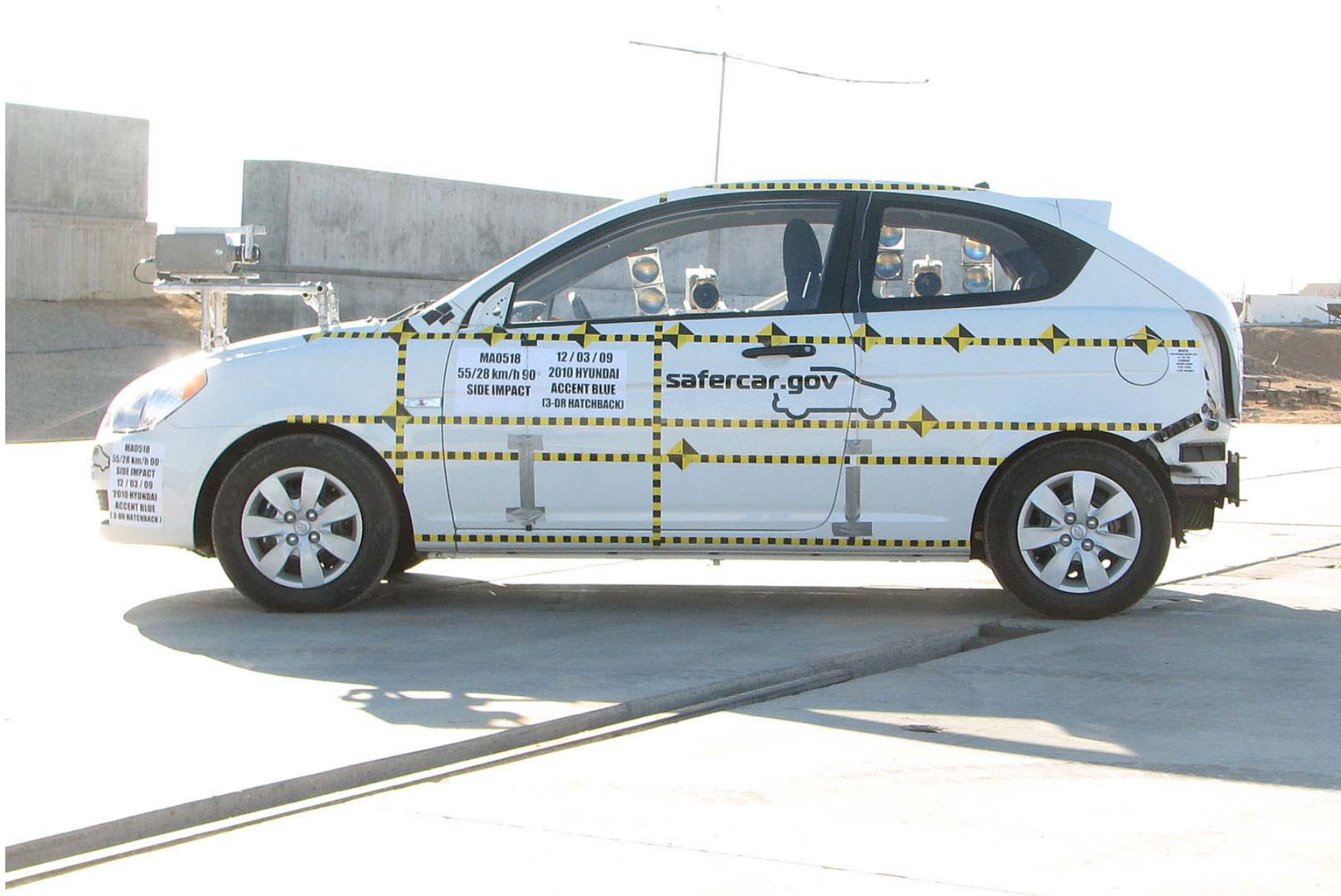


Figure A-9: Pre-Test Left Side View

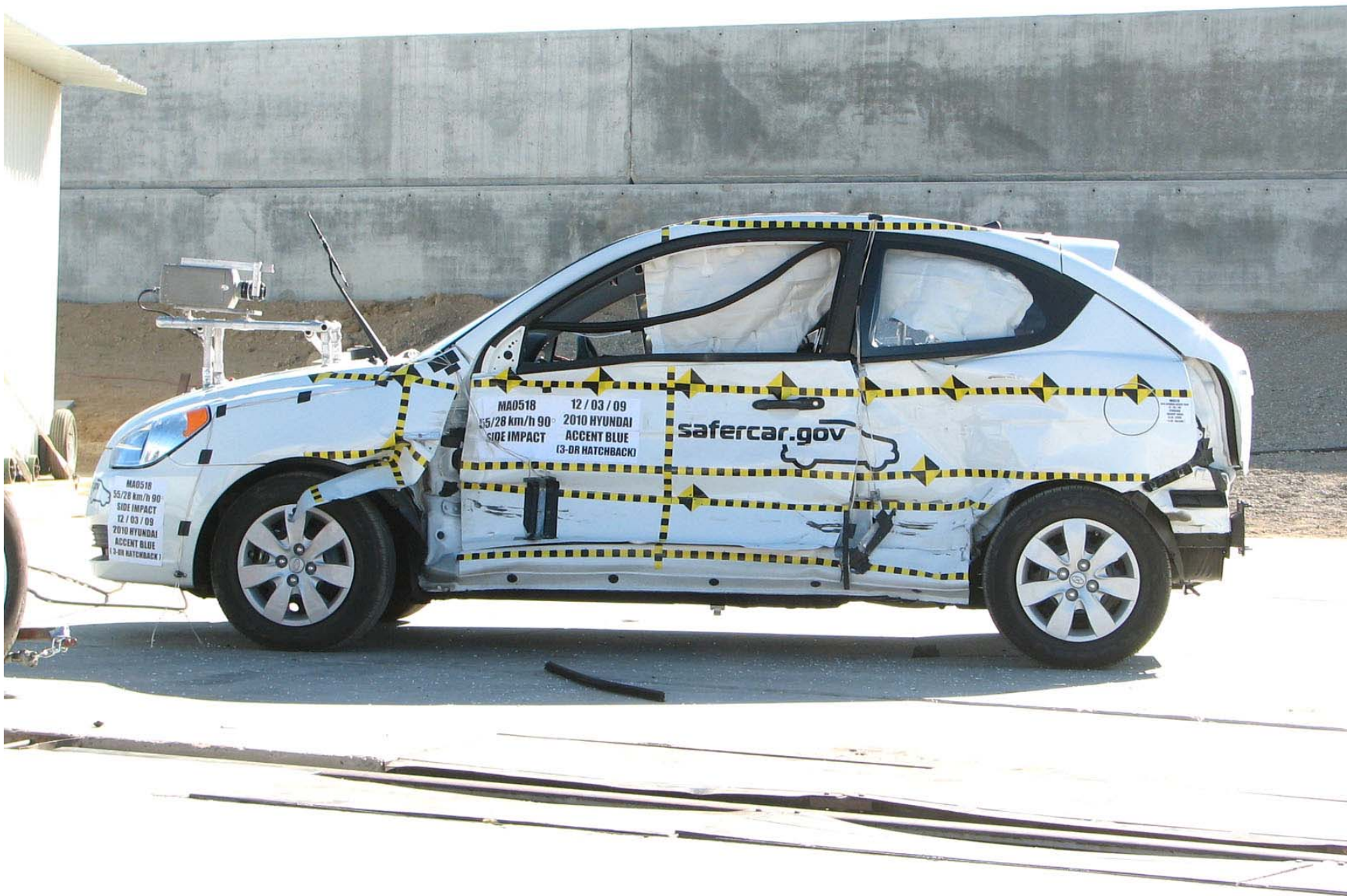


Figure A-10: Post-Test Left Side View



Figure A-11: Pre-Test Left Rear $\frac{3}{4}$ View



Figure A-12: Post-Test Left Rear $\frac{3}{4}$ View



Figure A-13: Pre-Test Rear View



Figure A-14: Post-Test Rear View



Figure A-15: Pre-Test Right Rear $\frac{3}{4}$ View



Figure A-16: Post-Test Right Rear $\frac{3}{4}$ View



Figure A-17: Pre-Test Right Side View



Figure A-18: Post-Test Right Side View



Figure A-19: Pre-Test Right Front $\frac{3}{4}$ View



Figure A-20: Post-Test Right Front $\frac{3}{4}$ View



Figure A-21: Pre-Test Overhead View



Figure A-22: Post-Test Overhead View

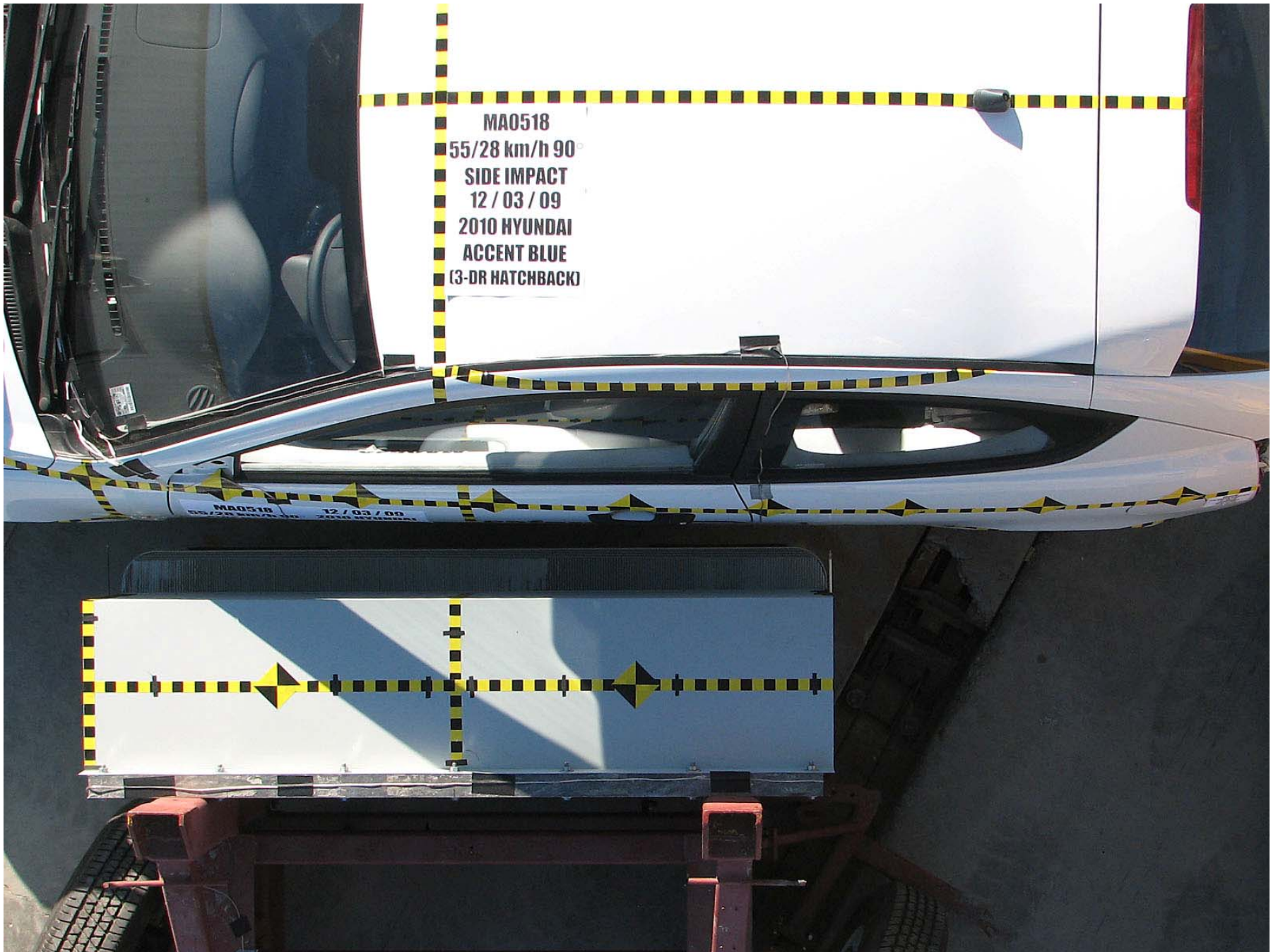


Figure A-23: Pre-Test Overhead Close-up View

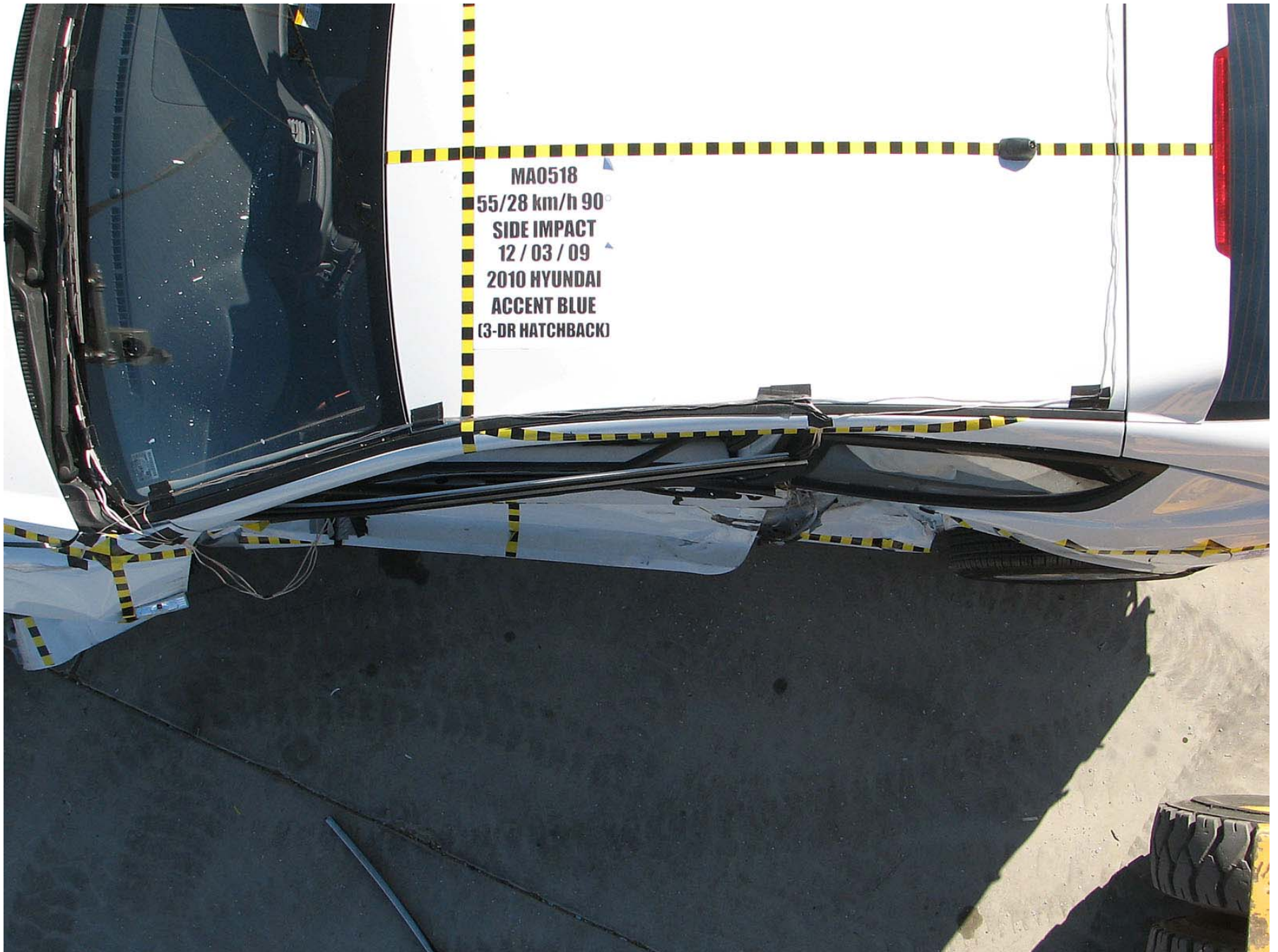


Figure A-24: Post-Test Overhead Close-up View

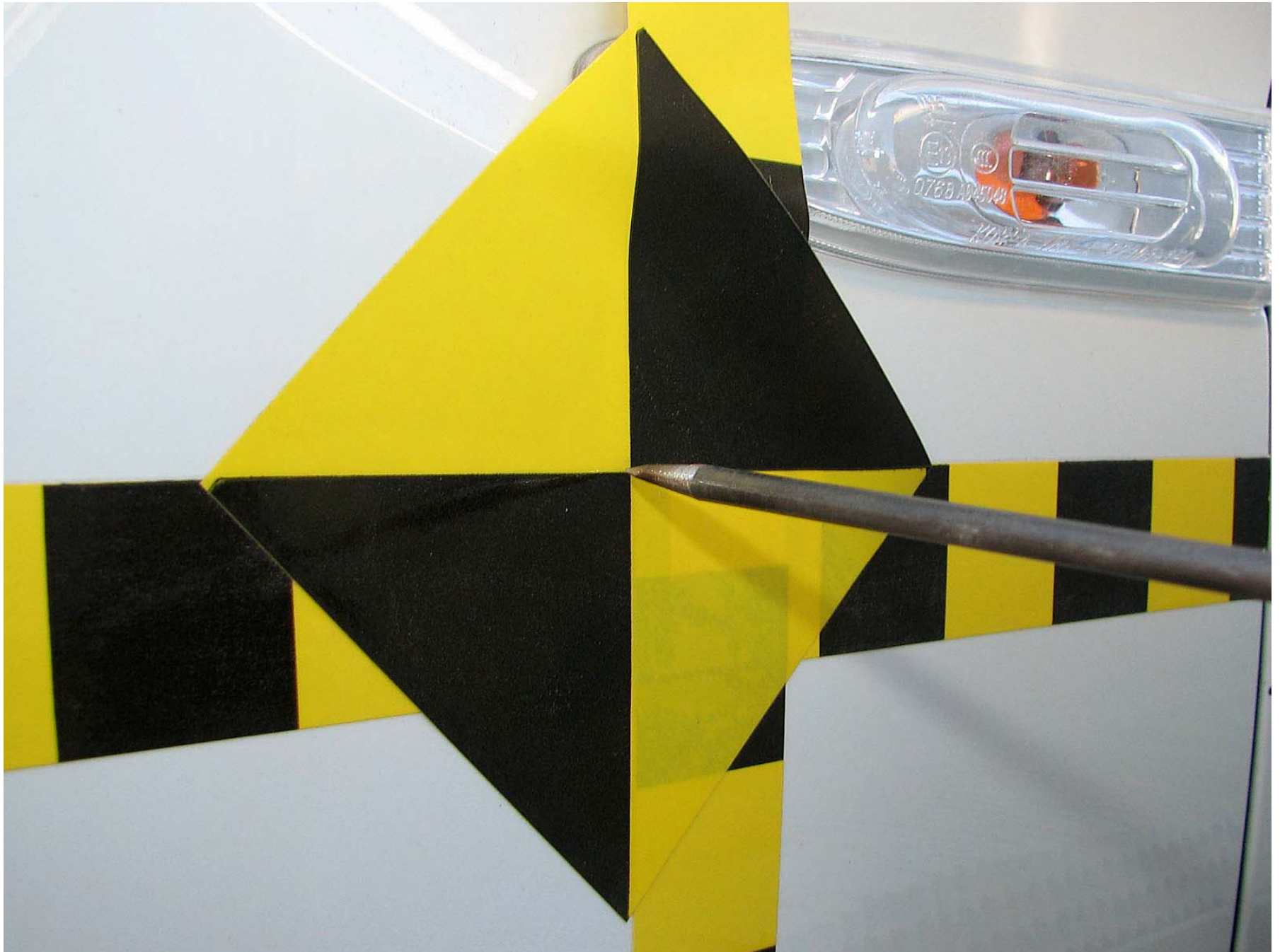


Figure A-25: Pre-Test Left Impact Point



Figure A-26: Post-Test Left Impact Point



Figure A-27: Pre-Test Front $\frac{3}{4}$ View of Left Side Door



Figure A-28: Post-Test Front $\frac{3}{4}$ View of Left Side Door



Figure A-29: Pre-Test Rear $\frac{3}{4}$ View of Left Side Door



Figure A-30: Post-Test Rear ¾ View of Left Side Door





Figure A-32: Post-Test Left Front Door



Figure A-33: Pre-Test Driver Dummy (Door Open)



Figure A-34: Pre-Test Driver Dummy (Through Window)



Figure A-35: Post-Test Driver Dummy (Through Window)



Figure A-36: Pre-Test Driver Dummy Clearance From Door



Figure A-37: Post-Test Driver Dummy Clearance From Door



Figure A-38: Pre-Test Driver Dummy Right Side View



Figure A-39: Post-Test Driver Dummy Right Side View



Figure A-40: Pre-Test Front Door Panel (Interior)





Figure A-42: Pre-Test Passenger Dummy Left Side (Door Open)



Figure A-43: Pre-Test Passenger Dummy Left Side (Through Window)



Figure A-44: Post-Test Passenger Dummy Left Side (Through Window)



Figure A-45: Pre-Test Passenger Dummy Clearance From Door



Figure A-46: Post-Test Passenger Dummy Clearance From Door



Figure A-47: Pre-Test Passenger Dummy Right Side View



Figure A-48: Post-Test Passenger Dummy Right Side View



Figure A-49: Pre-Test Rear Panel (Interior)



Figure A-50: Post-Test Rear Panel (Interior)



Figure A-51: Pre-Test Front View of Deformable Barrier



Figure A-52: Post-Test Front View of Deformable Barrier



Figure A-53: Pre-Test Top View of Deformable Barrier



Figure A-54: Post-Test Top View of Deformable Barrier



Figure A-55: Pre-Test Right Side View of Deformable Barrier

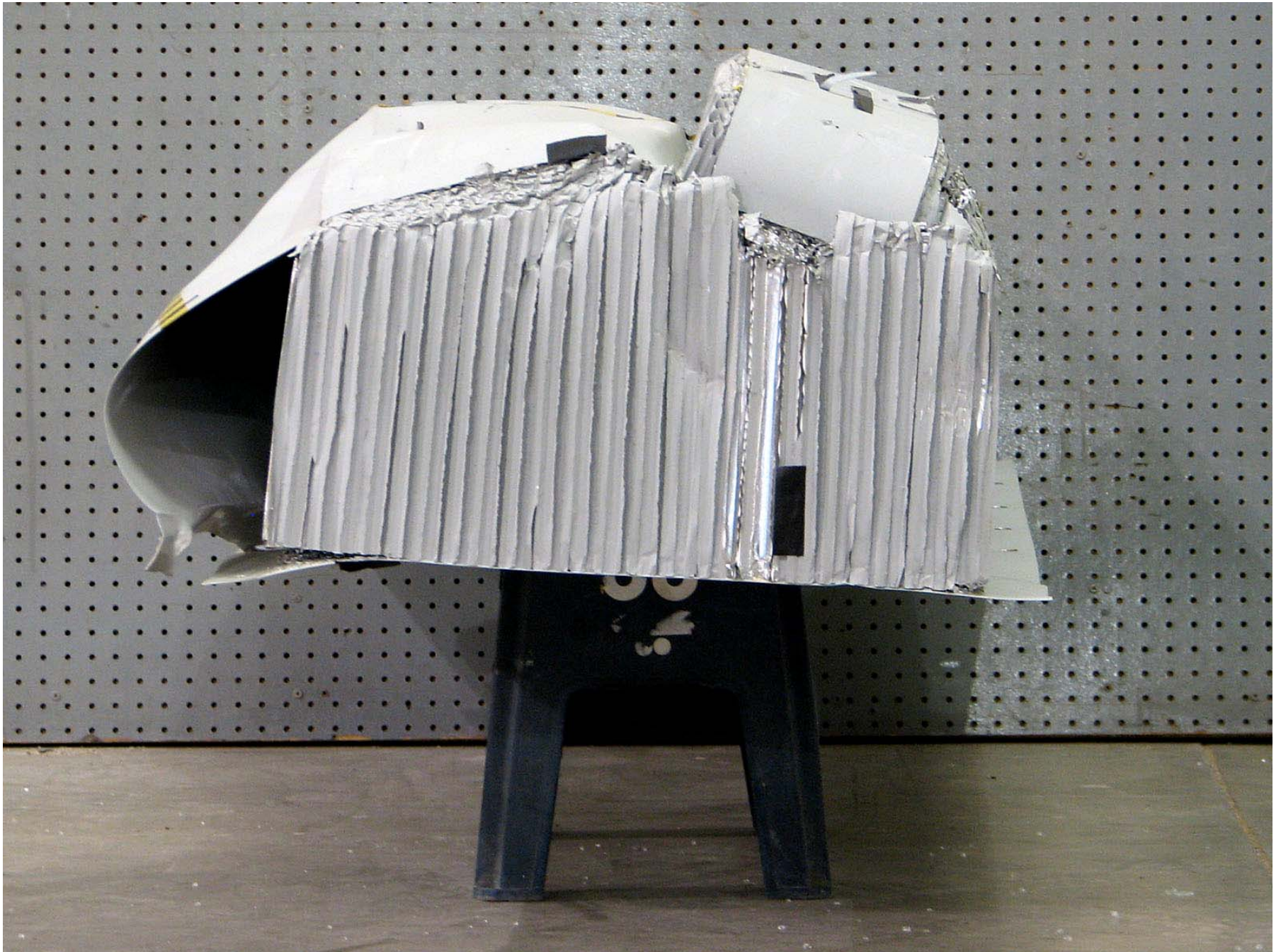


Figure A-56: Post-Test Right Side View of Deformable Barrier



Figure A-57: Pre-Test Left Side View of Deformable Barrier



Figure A-58: Post-Test Left Side View of Deformable Barrier

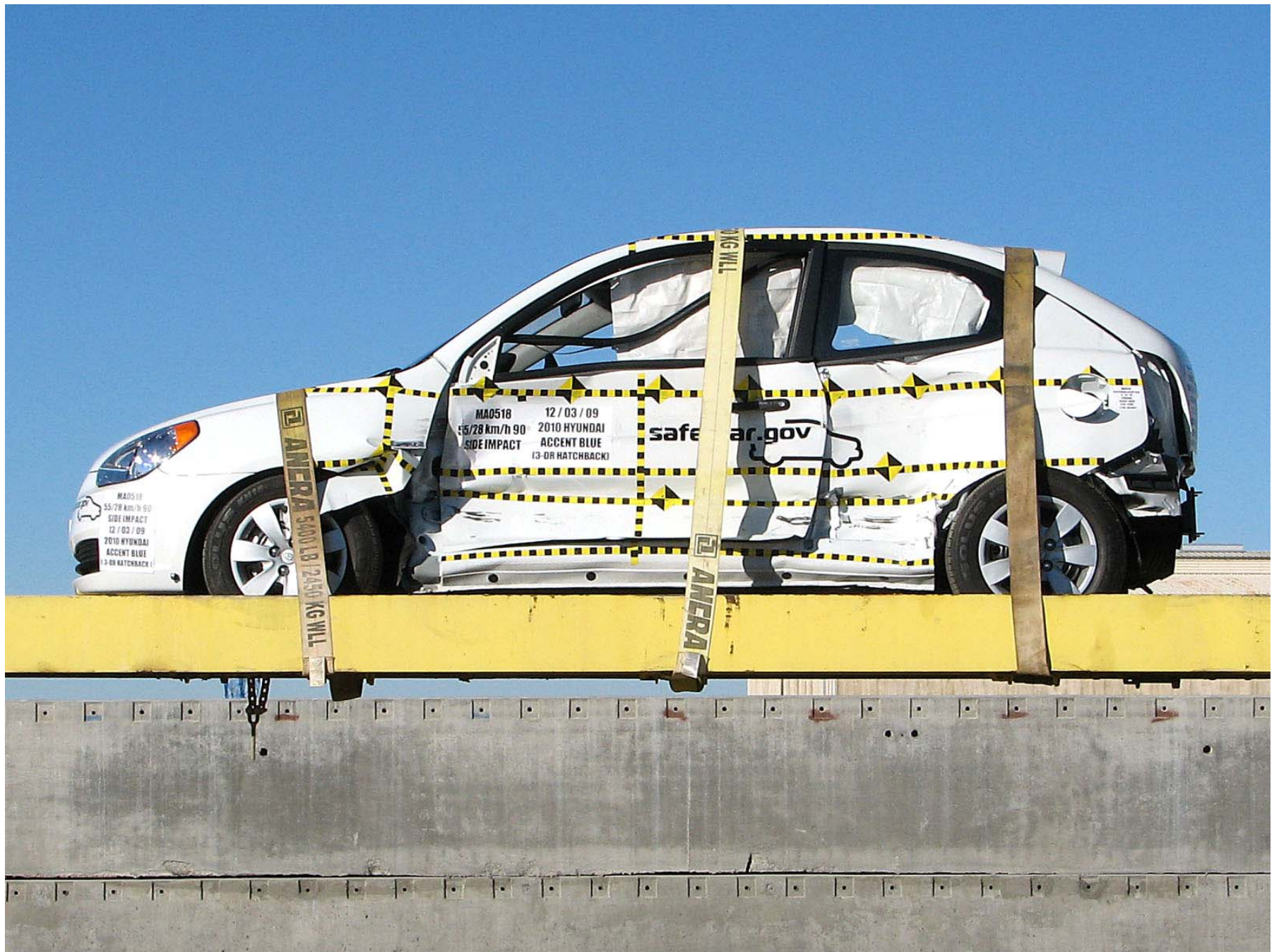


Figure A-59: Vehicle on Rollover Device (0°)



Figure A-60: Vehicle on Rollover Device (90°)

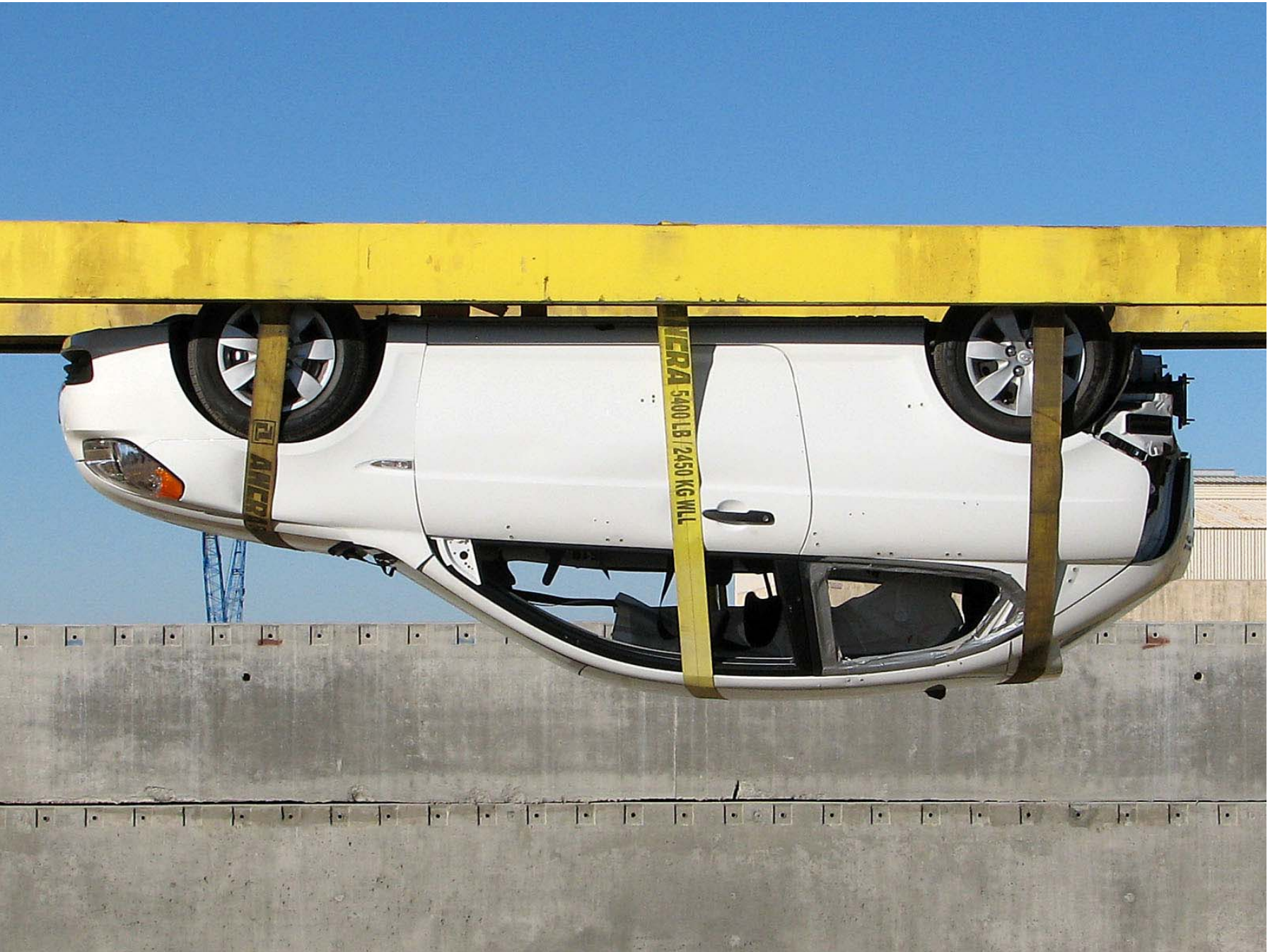


Figure A-61: Vehicle on Rollover Device (180°)

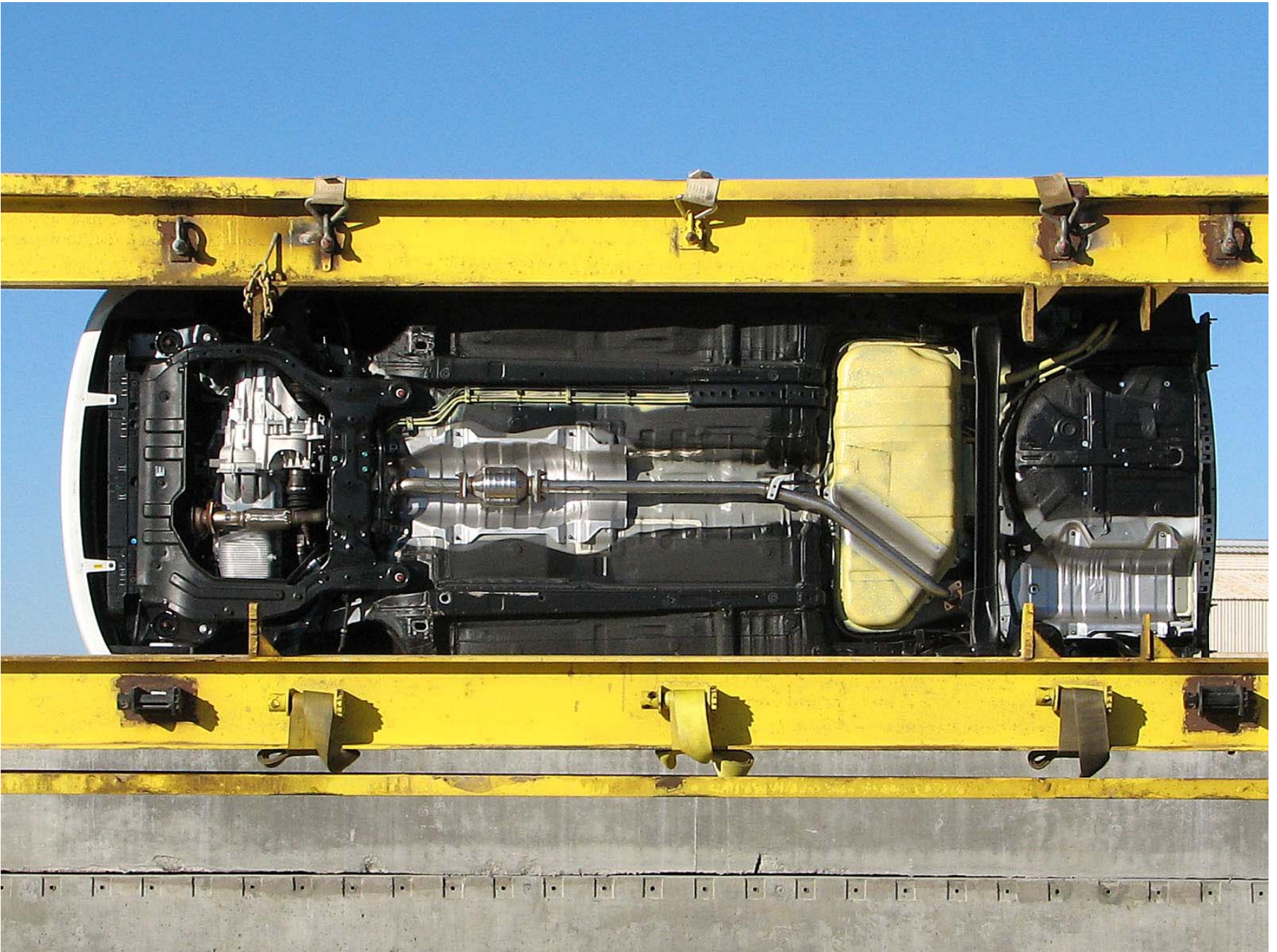


Figure A-62: Vehicle on Rollover Device (270°)

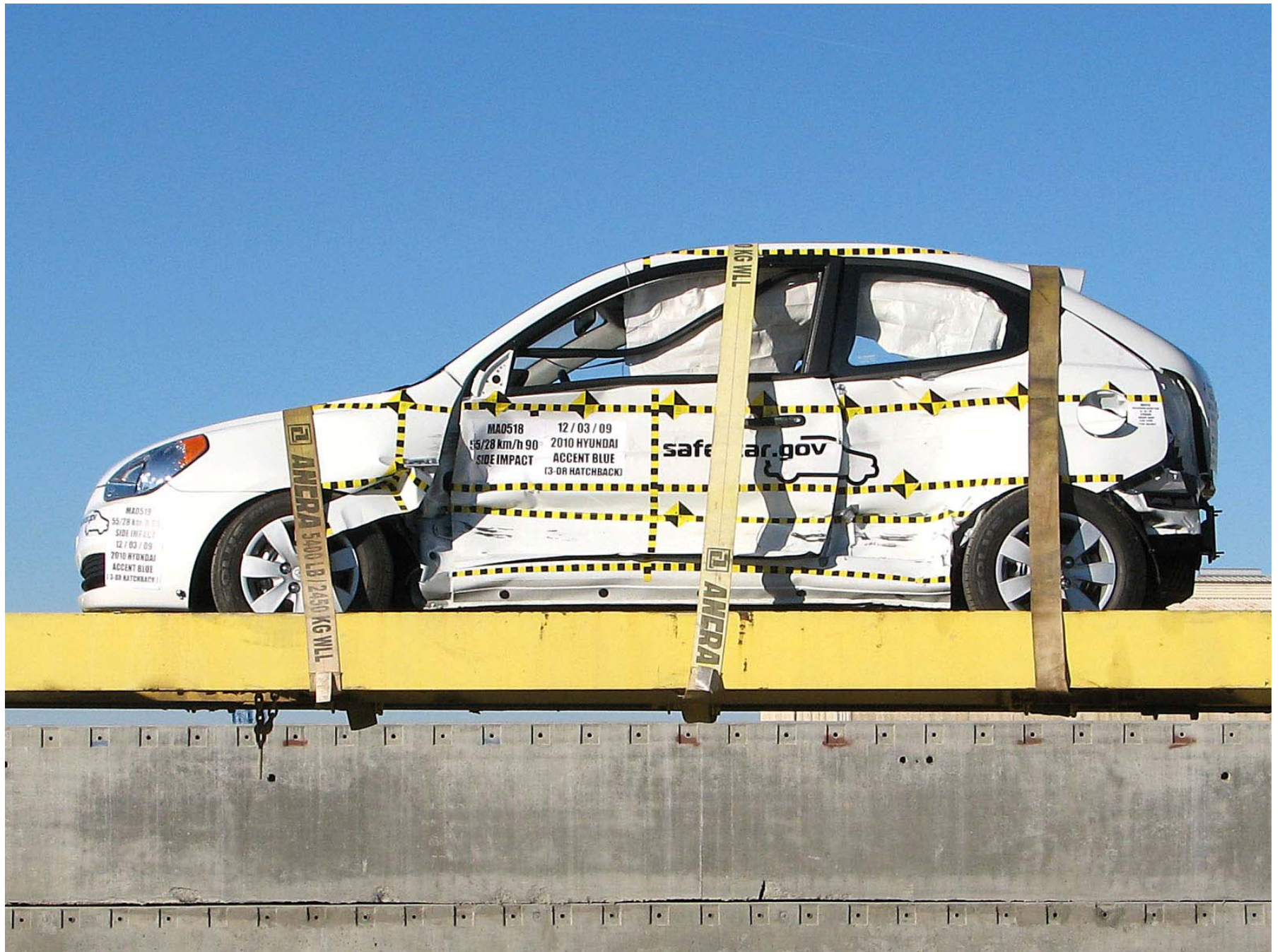


Figure A-63: Vehicle on Rollover Device (360°)



Figure A-64: Timers



Figure A-65: Vehicle Impact

APPENDIX B
SID/HIII, VEHICLE AND MDB RESPONSE DATA

LIST OF DATA PLOTS

<u>Data Plot</u>	<u>Page</u>
B-1	Driver Upper Rib Y Primary
	Driver Lower Rib Y Primary
	Driver Lower Spine Y Primary
	Driver Pelvis Primary Y
B-2	Passenger Upper Rib Y Primary
	Passenger Lower Rib Y Primary
	Passenger Lower Spine Y Primary
	Passenger Pelvis Y Primary

The following additional data plots for this test can be obtained from the research and development section of the NHTSA website. The website can be found at www.NHTSA.dot.gov

LIST OF DATA PLOTS...(CONTINUED)

Driver Head X Primary
Driver Head Y Primary
Driver Head Z Primary
Driver Head Resultant Primary
Driver Head Primary X Velocity
Driver Head Primary Y Velocity
Driver Head Primary Z Velocity
Driver Head X Redundant
Driver Head Y Redundant
Driver Head Z Redundant
Driver Head Resultant Redundant
Driver Head Redundant X Velocity
Driver Head Redundant Y Velocity
Driver Head Redundant Z Velocity
Driver Upper Neck Force X
Driver Upper Neck Force Y
Driver Upper Neck Force Z
Driver Upper Neck Force Resultant
Driver Upper Neck Moment X
Driver Upper Neck Moment Y
Driver Upper Neck Moment Z
Driver Upper Neck Moment Resultant
Driver Upper Rib Primary Y Velocity
Driver Lower Rib Primary Y Velocity
Driver Lower Spine Primary Y Velocity
Driver Pelvis Primary Y Velocity
Driver Upper Rib Redundant Y
Driver Lower Rib Redundant Y
Driver Lower Spine Redundant Y
Driver Pelvis Redundant Y

LIST OF DATA PLOTS...(CONTINUED)

Driver Upper Rib Redundant Y Velocity
Driver Lower Rib Redundant Y Velocity
Driver Lower Spine Redundant Y Velocity
Driver Pelvis Redundant Y Velocity
Driver Thorax Contact
Driver Pelvis Contact
Passenger Head X Primary
Passenger Head Y Primary
Passenger Head Z Primary
Passenger Head Resultant Primary
Passenger Head Primary X Velocity
Passenger Head Primary Y Velocity
Passenger Head Primary Z Velocity
Passenger Head X Redundant
Passenger Head Y Redundant
Passenger Head Z Redundant
Passenger Head Resultant Redundant
Passenger Head Redundant X Velocity
Passenger Head Redundant Y Velocity
Passenger Head Redundant Z Velocity
Passenger Upper Neck Force X
Passenger Upper Neck Force Y
Passenger Upper Neck Force Z
Passenger Upper Neck Force Resultant
Passenger Upper Neck Moment X
Passenger Upper Neck Moment Y
Passenger Upper Neck Moment Z
Passenger Upper Neck Moment Resultant

LIST OF DATA PLOTS...(CONTINUED)

Passenger Upper Rib Primary Y Velocity
Passenger Lower Rib Primary Y Velocity
Passenger Lower Spine Primary Y Velocity
Passenger Pelvis Primary Y Velocity
Passenger Upper Rib Redundant Y
Passenger Lower Rib Redundant Y
Passenger Lower Spine Redundant Y
Passenger Pelvis Redundant Y
Passenger Upper Rib Redundant Y Velocity
Passenger Lower Rib Redundant Y Velocity
Passenger Lower Spine Redundant Y Velocity
Passenger Pelvis Redundant Y Velocity
Passenger Thorax Contact
Passenger Pelvis Contact
Vehicle Right Sill at Front Seat X
Vehicle Right Sill at Front Seat Y
Vehicle Right Sill at Front Seat Z
Vehicle Right Sill Front Seat Resultant
Vehicle Right Sill at Front Seat X Velocity
Vehicle Right Sill at Front Seat Y Velocity
Vehicle Right Sill at Front Seat Z Velocity
Vehicle Right Sill at Rear Seat X
Vehicle Right Sill at Rear Seat Y
Vehicle Right Sill at Rear Seat Z
Vehicle Right Sill Rear Seat Resultant
Vehicle Right Sill at Rear Seat X Velocity
Vehicle Right Sill at Rear Seat Y Velocity
Vehicle Right Sill at Rear Seat Z Velocity
Vehicle Rear Floor Above Axle X
Vehicle Rear Floor Above Axle Y
Vehicle Rear Floor Above Axle Z
Vehicle Rear Floor Above Axle Resultant
Vehicle Rear Floor Above Axle X Velocity
Vehicle Rear Floor Above Axle Y Velocity
Vehicle Rear Floor Above Axle Z Velocity

LIST OF DATA PLOTS...(CONTINUED)

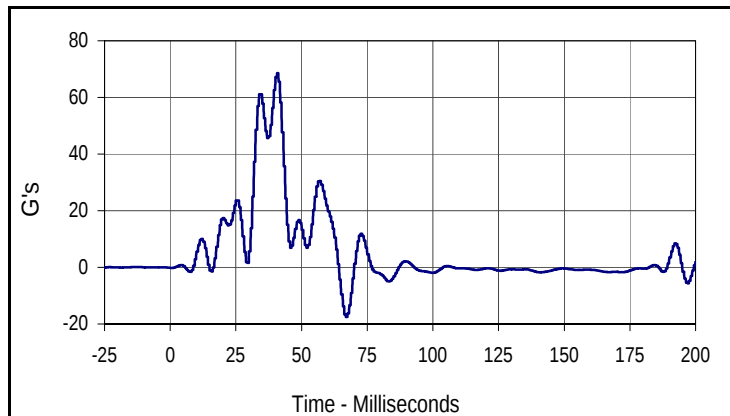
Vehicle Left Sill at Rear Door Y
Vehicle Left Sill at Front Door Y
Vehicle Left Sill at Rear Door Y Velocity
Vehicle Left Sill at Front Door Y Velocity
Vehicle Left Front Door C/L Y
Vehicle Right Rear Occupant Compartment
Vehicle Left Front Door Mid Rear Y
Vehicle Left Front Door Upper CL Y
Vehicle Left Front Door CL Y Velocity
Vehicle Right Rear Occupant Compartment Y Velocity
Vehicle Left Front Door Mid Rear Y Velocity
Vehicle Left Rear Door Upper CL Y Velocity
Vehicle Left Rear Door Mid Rear Y
Vehicle Left Rear Door Upper C/L Y
Vehicle Left Rear Door Mid Rear Y Velocity
Vehicle Left Rear Door Upper CL Y Velocity
Vehicle B-Post Lower Y
Vehicle B-Post Middle Y
Vehicle B-Post Lower Y Velocity
Vehicle B-Post Middle Y Velocity
Vehicle A-Post Lower Y
Vehicle A-Post Middle Y
Vehicle A-Post Lower Y Velocity
Vehicle A-Post Middle Y Velocity
Vehicle Left Front Seat Track
Vehicle Rear Seat Structure
Vehicle Left Front Seat Track Y Velocity
Vehicle Rear Seat Structure Y Velocity
Vehicle CG X
Vehicle CG Y
Vehicle CG Z
Vehicle CG Resultant
Vehicle CG X Velocity
Vehicle CG Y Velocity
Vehicle CG Z Velocity

LIST OF DATA PLOTS...(CONTINUED)

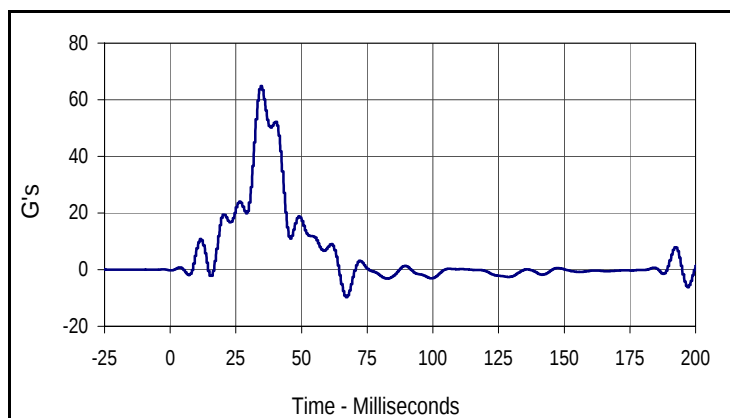
Driver Upper Rib Primary Y
Driver Lower Rib Primary Y
Driver Lower Spine Primary Y
Driver Pelvis Primary Y
Driver Upper Rib Redundant Y
Driver Lower Rib Redundant Y
Driver Lower Spine Redundant Y
Driver Pelvis Redundant Y
Passenger Upper Rib Primary Y
Passenger Lower Rib Primary Y
Passenger Lower Spine Primary Y
Passenger Pelvis Primary Y
Passenger Upper Rib Redundant Y
Passenger Lower Rib Redundant Y
Passenger Lower Spine Redundant Y
Passenger Pelvis Redundant Y
MDB CG X
MDB CG Y
MDB CG Z
MDB CG Resultant
MDB CG X Velocity
MDB CG Y Velocity
MDB CG Z Velocity
MDB Rear X
MDB Rear Y
MDB Rear X Velocity
MDB Rear Y Velocity
MDB Right Bumper Contact

Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback
 Test Program: 55/28 km/h Side Impact NCAP

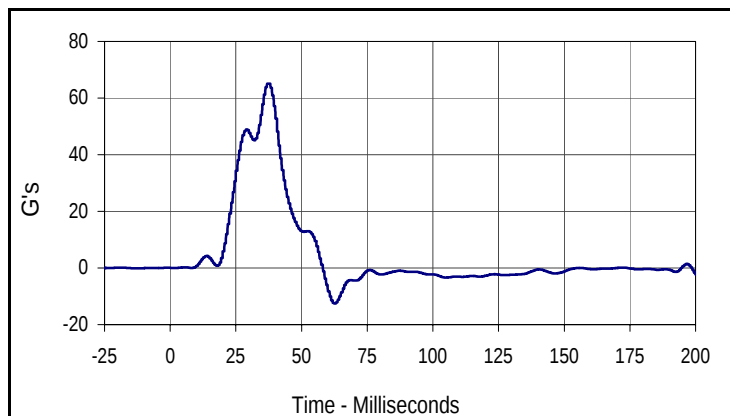
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 NHTSA No.: MA0518



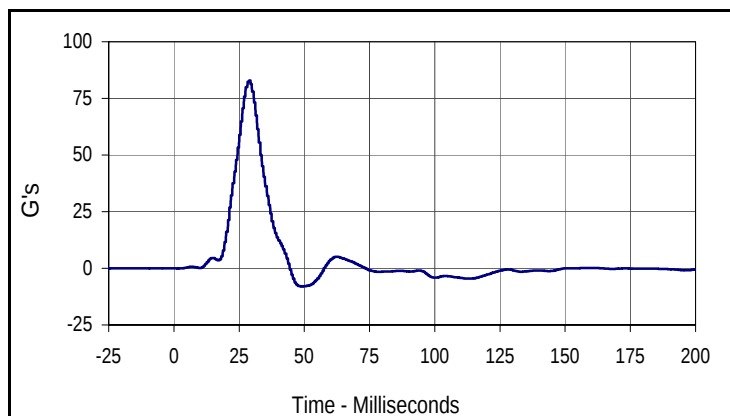
Curve Description			
Driver Upper Rib Y Primary			
CURNO	Type	SAE Class	Units
001	FIR	FIR100	G's
Max	Time	Min	Time
68.5	40.7	-17.5	66.9



Curve Description			
Driver Lower Rib Y Primary			
CURNO	Type	SAE Class	Units
002	FIR	FIR100	G's
Max	Time	Min	Time
64.9	34.4	-9.7	66.9



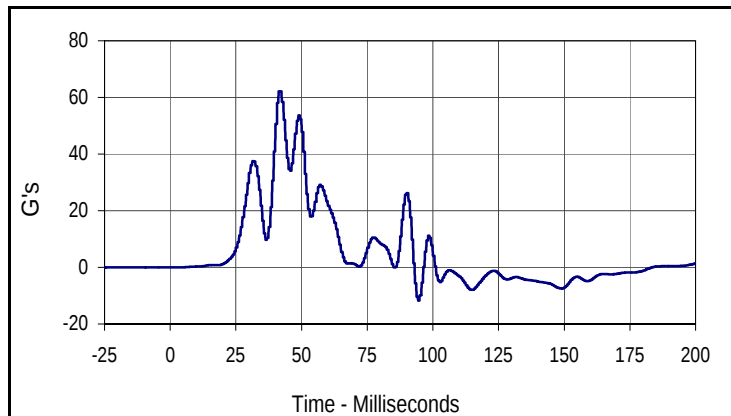
Curve Description			
Driver Lower Spine Y Primary			
CURNO	Type	SAE Class	Units
003	FIR	FIR100	G's
Max	Time	Min	Time
65.1	36.9	-12.5	62.5



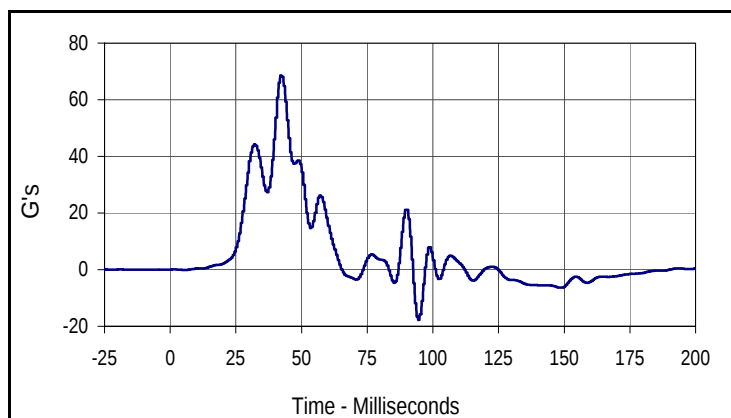
Curve Description			
Driver Pelvis Primary Y			
CURNO	Type	SAE Class	Units
004	FIR	FIR100	G's
Max	Time	Min	Time
82.9	28.8	-8.0	48.8

Test Vehicle: 2010 Hyundai Accent 3-Door Hatchback
 Test Program: 55/28 km/h Side Impact NCAP

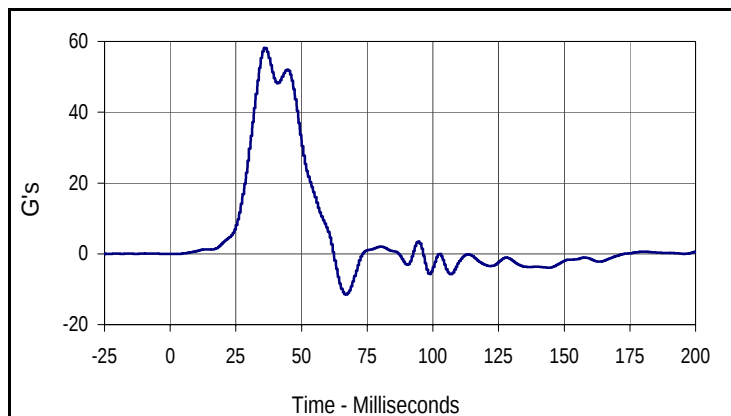
Test Date: 12/3/09
 NHTSA No.: MA0518



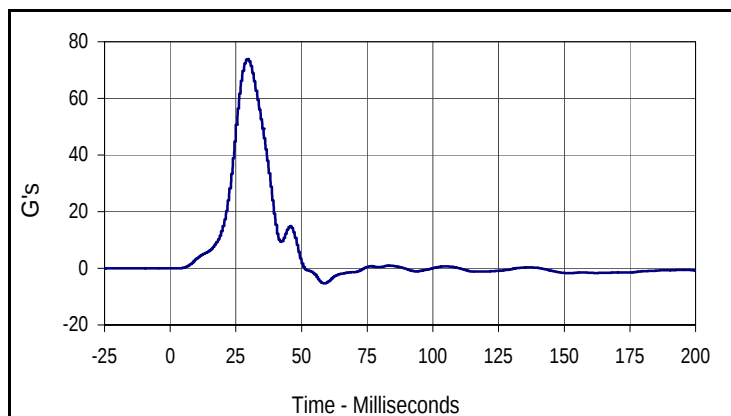
Curve Description			
Passenger Upper Rib Y Primary			
CURNO	Type	SAE Class	Units
005	FIR	FIR100	G's
Max	Time	Min	Time
62.1	41.9	-11.8	94.4



Curve Description			
Passenger Lower Rib Y Primary			
CURNO	Type	SAE Class	Units
006	FIR	FIR100	G's
Max	Time	Min	Time
68.6	41.9	-17.7	94.4



Curve Description			
Passenger Lower Spine Y Primary			
CURNO	Type	SAE Class	Units
007	FIR	FIR100	G's
Max	Time	Min	Time
58.2	35.7	-11.5	66.9



Curve Description			
Passenger Pelvis Y Primary			
CURNO	Type	SAE Class	Units
008	FIR	FIR100	G's
Max	Time	Min	Time
73.9	29.4	-5.3	58.2

APPENDIX C
SID/HIII CONFIGURATION AND PERFORMANCE VERIFICATION DATA

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

Test Program: SID / HIII External Measurements
ATD Serial No.: 275

Test Date: 11/2/09
Test I.D.: N/A



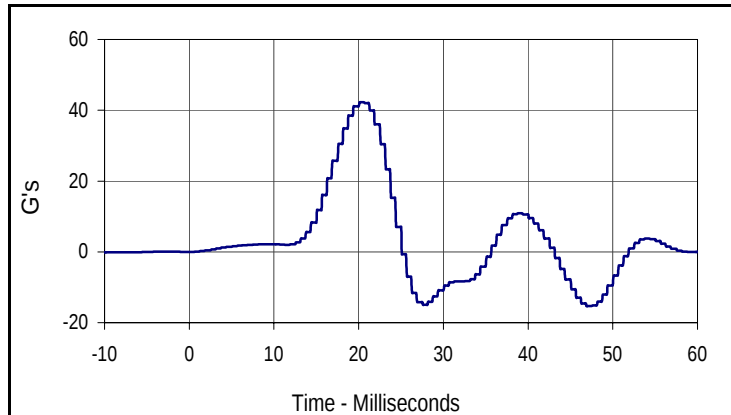
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
SH- Seated Height	mm	889 to 909	895	Pass
HP- Hip Point Height	mm	99 (reference)	99	Pass
RH- Rib Height	mm	502 to 520	514	Pass
KH- Knee Pivot From Back Line	mm	511 to 526	518	Pass
KV- Knee Pivot From Floor	mm	490 to 505	502	Pass
HW- Hip Width	mm	356 to 391	365	Pass
Overall Test Results				Pass

Test Program: SID / HIII Thorax Lateral Impact
 ATD Serial No.: 275

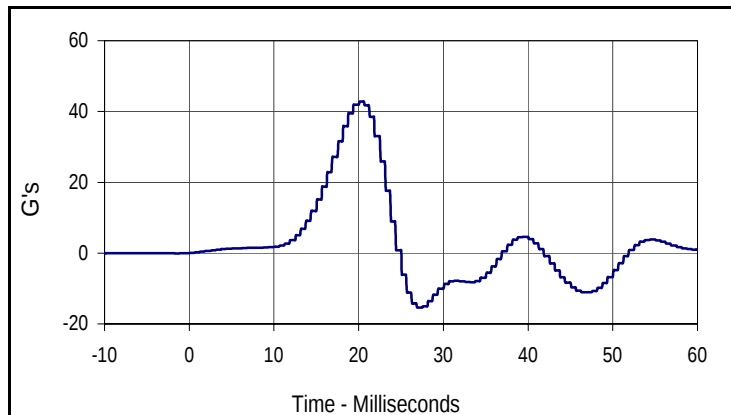
Test Date: 11/2/09
 Test I.D.: TH11A



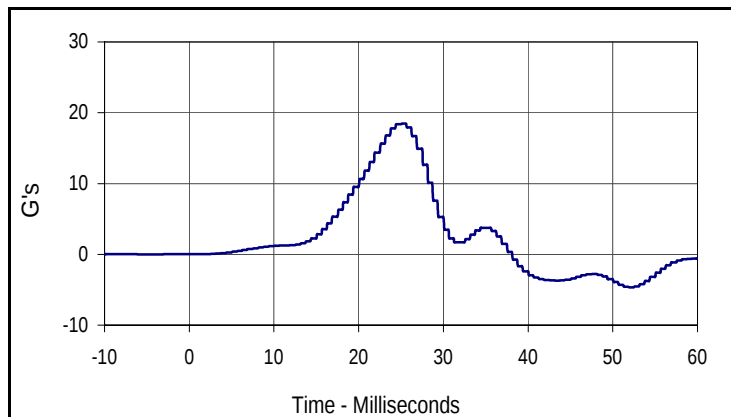
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.27	Pass
Upper Rib Acceleration	G's	37.0 to 46.0	42.3	Pass
Lower Rib Acceleration	G's	37.0 to 46.0	42.8	Pass
Thoracic Spine Acceleration	G's	15.0 to 22.0	18.5	Pass
Overall Test Results			Pass	



Curve Description			
Upper Rib Y Primary			
CURNO	Type	SAE Class	Units
001	FIL	FIR100	G's
Max	Time	Min	Time
42.3	20.1	-15.3	46.9



Curve Description			
Lower Rib Y Primary			
CURNO	Type	SAE Class	Units
002	FIL	FIR100	G's
Max	Time	Min	Time
42.8	20.1	-15.4	26.9



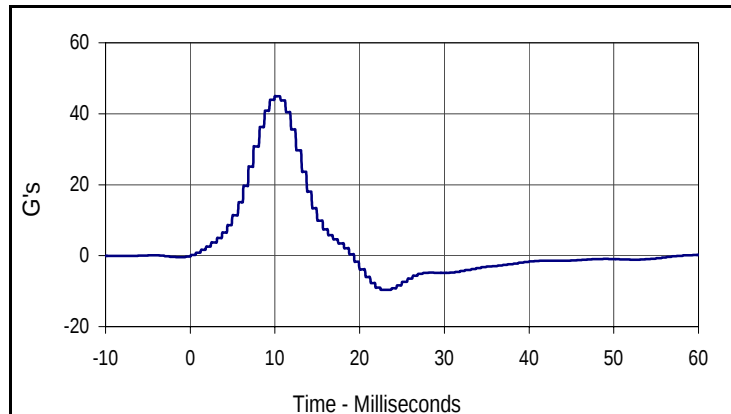
Curve Description			
Lower Spine Y Primary			
CURNO	Type	SAE Class	Units
003	FIL	FIR100	G's
Max	Time	Min	Time
18.5	25.1	-4.6	51.9

Test Program: SID / HIII Pelvis Lateral Impact
 ATD Serial No.: 275

Test Date: 11/2/09
 Test I.D.: PL11A



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
Probe Velocity	m/s	4.21 to 4.33	4.27	Pass
Peak Pelvis Acceleration	G's	40.0 to 60.0	44.9	Pass
Acceleration Time Above 20 G's	Msec.	3.0 to 7.0	4.90	Pass
Overall Test Results				Pass



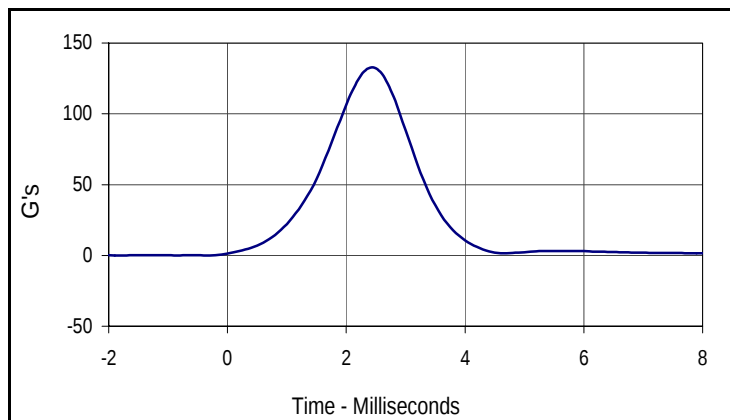
Curve Description			
Pelvis Y Primary			
CURNO	Type	SAE Class	Units
001	FIL	FIR100	G's
Max	Time	Min	Time
44.9	10.0	-9.7	23.2

Test Program: SID / HIII Head Drop Lateral Impact Test
 ATD Serial No.: 275

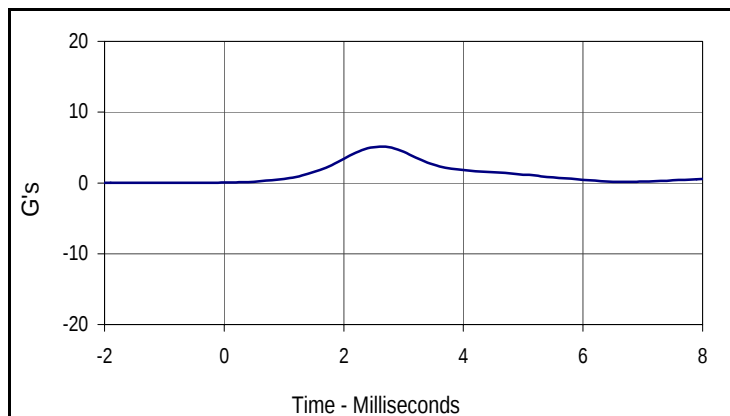
Test Date: 11/2/09
 Test I.D.: HD10A



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	120.0 to 150.0	132.7	Pass
Peak Longitudinal Acceleration	G's	≤15.0	5.1	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	2.4	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
132.7	2.4	0.0	-0.8



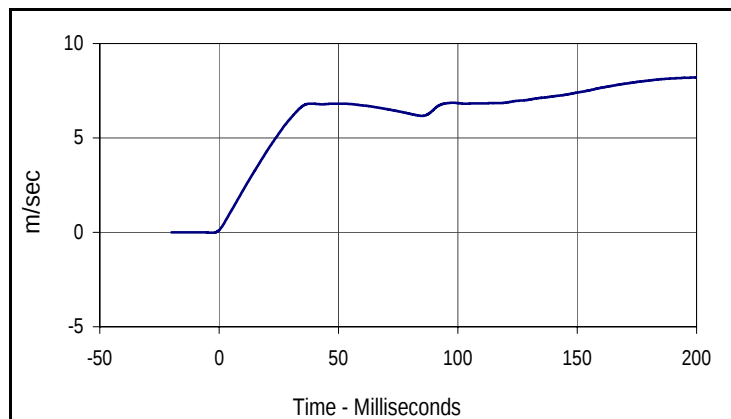
Curve Description			
Head X			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
5.1	2.6	0.0	-0.5

Test Program: SID / HIII Neck Pendulum Lateral Test
 ATD Serial No.: 275

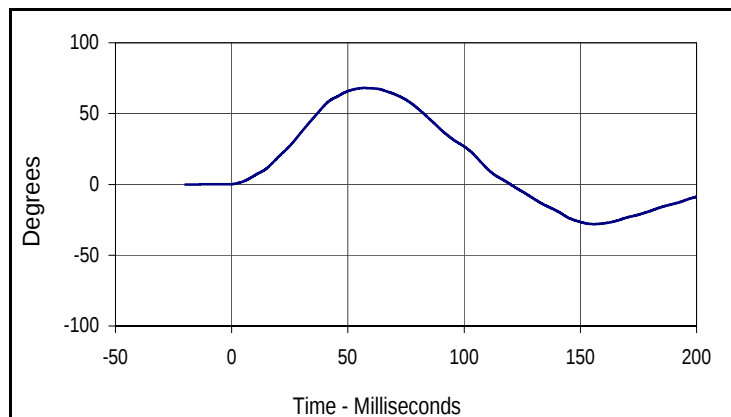
Test Date: 11/2/09
 Test I.D.: NB275B



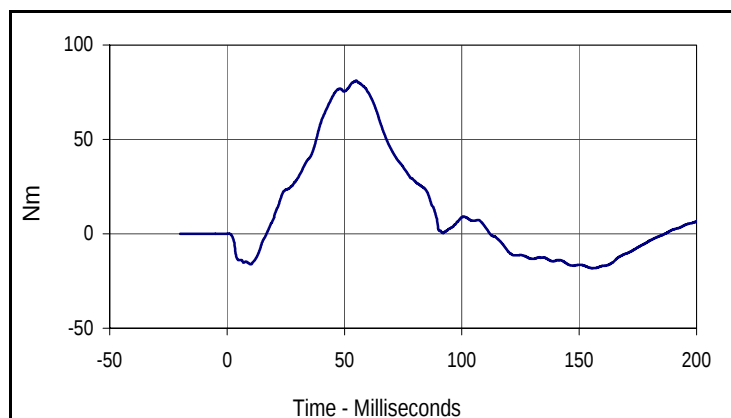
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/sec	6.89 to 7.13	6.98	Pass
Pendulum Deceleration	10 Msec.	m/sec	1.96 to 2.55	2.23	Pass
	20 Msec.	m/sec	4.12 to 5.10	4.30	Pass
	30 Msec.	m/sec	5.73 to 7.01	6.06	Pass
	40 to 70	m/sec	6.27 to 7.64	6.82	Pass
"D" Plane Rotation	Max	Degrees	66.0 to 82.0	68.1	Pass
Max Rotation Time After Peak Moment		Msec.	2.0 to 16.0	2.1	Pass
Rotation Time From Peak to Zero Angle		Msec.	58.0 to 67.0	62.9	Pass
Moment About Occipital Condyle		Nm	73.0 to 88.0	81.2	Pass
Positive Moment Decay, Time To 0 Nm		Msec.	49.0 to 64.0	57.0	Pass
Overall Test Results					Pass



Curve Description			
ion			
CURNO	Type	SAE Class	Units
001	FIL	none	m/sec
Max	Time	Min	Time
8.2	200.0	0.0	-2.9



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	none	Degrees
Max	Time	Min	Time
68.1	57.1	-28.0	156.0



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	none	Nm
Max	Time	Min	Time
81.2	55.0	-18.2	155.6

Test Program: SID / HIII External Measurements
 ATD Serial No.: 274

Test Date: 11/2/09
 Test I.D.: N/A



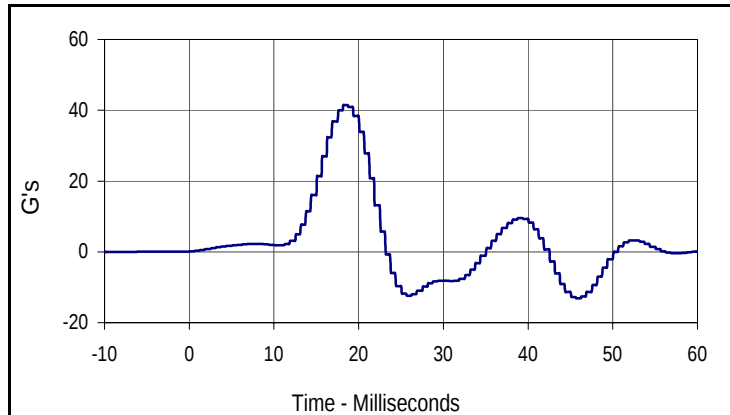
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
SH- Seated Height	mm	889 to 909	893	Pass
HP- Hip Point Height	mm	99 (reference)	99	Pass
RH- Rib Height	mm	502 to 520	513	Pass
KH- Knee Pivot From Back Line	mm	511 to 526	517	Pass
KV- Knee Pivot From Floor	mm	490 to 505	492	Pass
HW- Hip Width	mm	356 to 391	362	Pass
Overall Test Results				Pass

Test Program: SID / HIII Thorax Lateral Impact
 ATD Serial No.: 274

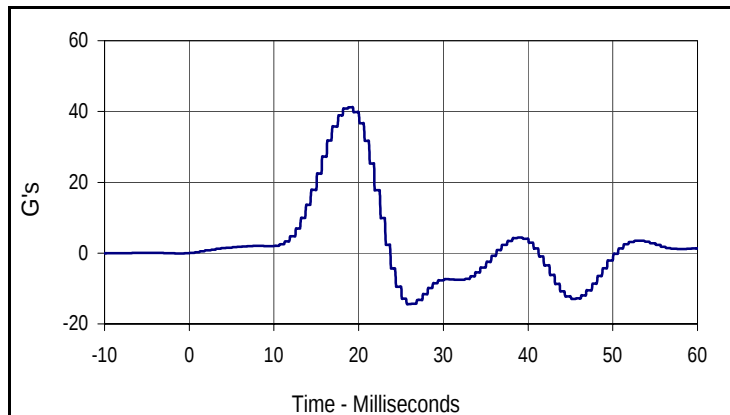
Test Date: 11/2/09
 Test I.D.: TH10D



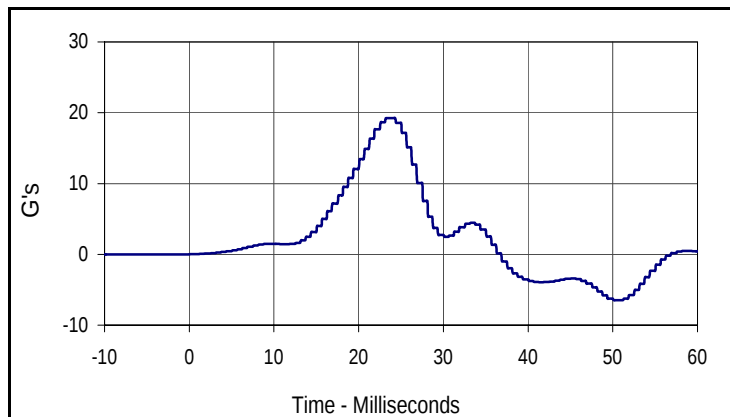
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.27	Pass
Upper Rib Acceleration	G's	37.0 to 46.0	41.5	Pass
Lower Rib Acceleration	G's	37.0 to 46.0	41.2	Pass
Thoracic Spine Acceleration	G's	15.0 to 22.0	19.3	Pass
Overall Test Results			Pass	



Curve Description			
Upper Rib Y Primary			
CURNO	Type	SAE Class	Units
001	FIL	FIR100	G's
Max	Time	Min	Time
41.5	18.2	-13.2	45.7



Curve Description			
Lower Rib Y Primary			
CURNO	Type	SAE Class	Units
002	FIL	FIR100	G's
Max	Time	Min	Time
41.2	18.8	-14.4	25.7



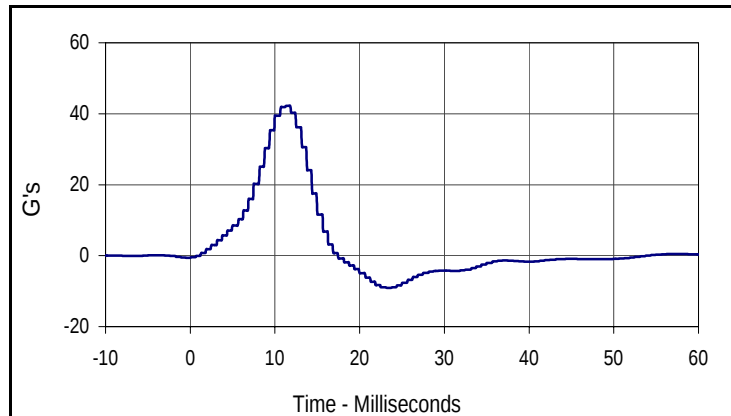
Curve Description			
Lower Spine Y Primary			
CURNO	Type	SAE Class	Units
003	FIL	FIR100	G's
Max	Time	Min	Time
19.3	23.2	-6.5	50.7

Test Program: SID / HIII Pelvis Lateral Impact
 ATD Serial No.: 274

Test Date: 11/2/09
 Test I.D.: PL10D



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
Probe Velocity	m/s	4.21 to 4.33	4.28	Pass
Peak Pelvis Acceleration	G's	40.0 to 60.0	42.2	Pass
Acceleration Time Above 20 G's	Msec.	3.0 to 7.0	4.90	Pass
Overall Test Results				Pass



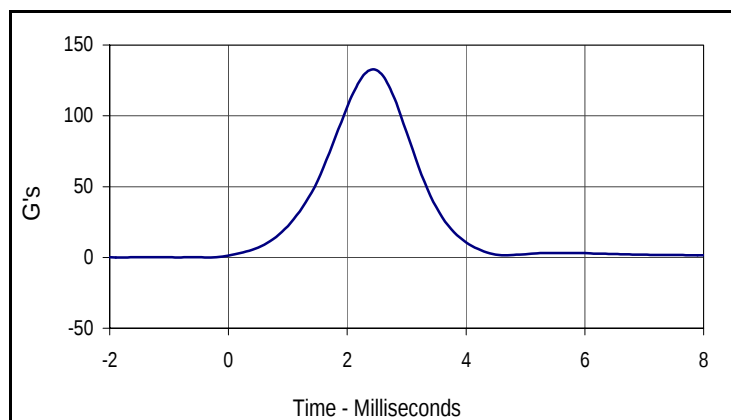
Curve Description			
Pelvis Y Primary			
CURNO	Type	SAE Class	Units
001	FIL	FIR100	G's
Max	Time	Min	Time
42.2	11.3	-9.1	23.2

Test Program: SID / HIII Head Drop Lateral Impact Test
 ATD Serial No.: 274

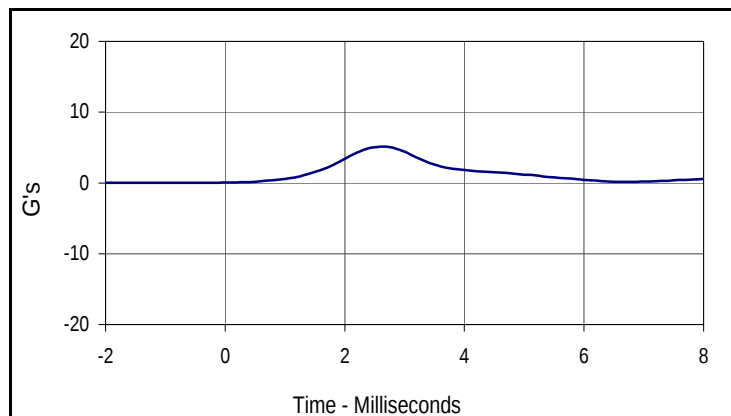
Test Date: 11/2/09
 Test I.D.: HD10D



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	120.0 to 150.0	132.7	Pass
Peak Longitudinal Acceleration	G's	≤15.0	5.1	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	2.4	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
132.7	2.4	0.0	-0.8



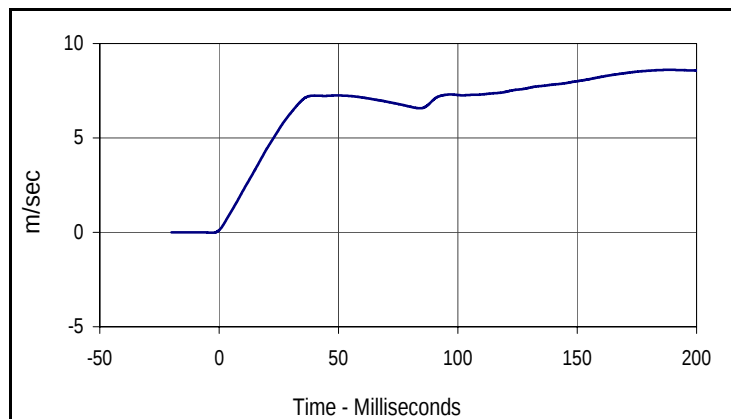
Curve Description			
Head X			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
5.1	2.6	0.0	-0.5

Test Program: SID / HIII Neck Pendulum Lateral Test
 ATD Serial No.: 274

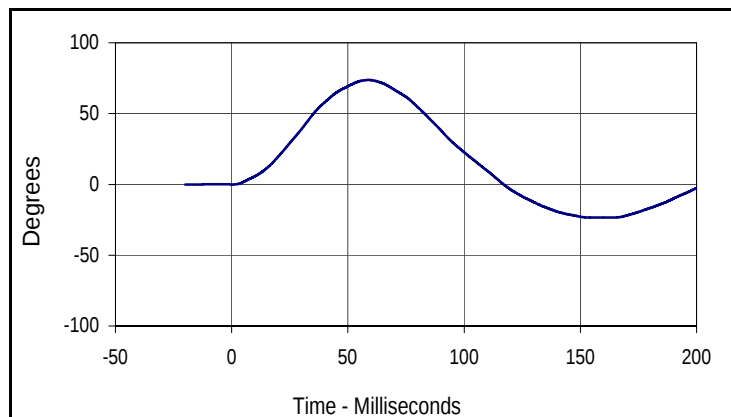
Test Date: 11/2/09
 Test I.D.: NB274C



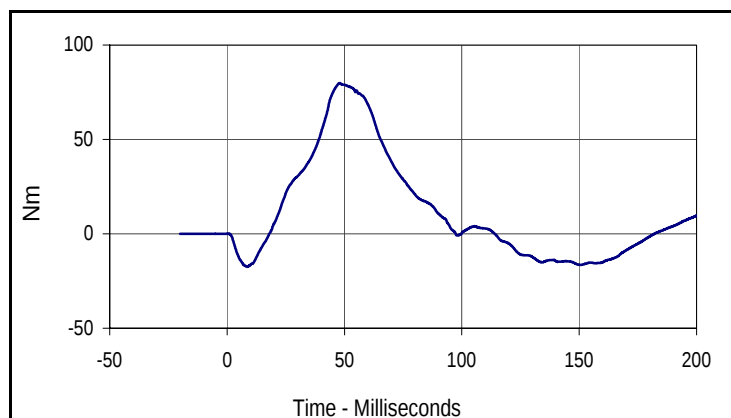
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/sec	6.89 to 7.13	6.94	Pass
Pendulum Deceleration	10 Msec.	m/sec	1.96 to 2.55	2.21	Pass
	20 Msec.	m/sec	4.12 to 5.10	4.43	Pass
	30 Msec.	m/sec	5.73 to 7.01	6.33	Pass
	40 to 70	m/sec	6.27 to 7.64	7.25	Pass
"D" Plane Rotation	Max	Degrees	66.0 to 82.0	73.7	Pass
Max Rotation Time After Peak Moment		Msec.	2.0 to 16.0	11.1	Pass
Rotation Time From Peak to Zero Angle		Msec.	58.0 to 67.0	58.1	Pass
Moment About Occipital Condyle		Nm	73.0 to 88.0	79.8	Pass
Positive Moment Decay, Time To 0 Nm		Msec.	49.0 to 64.0	49.6	Pass
			Overall Test Results		Pass



Curve Description			
ion			
CURNO	Type	SAE Class	Units
001	FIL	none	m/sec
Max	Time	Min	Time
8.6	188.4	0.0	-2.9



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	none	Degrees
Max	Time	Min	Time
73.7	58.9	-23.4	154.2



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	none	Nm
Max	Time	Min	Time
79.8	47.8	-17.5	8.7

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

Test Program: SID / HIII External Measurements
ATD Serial No.: 274

Test Date: 12/7/09
Test I.D.: N/A



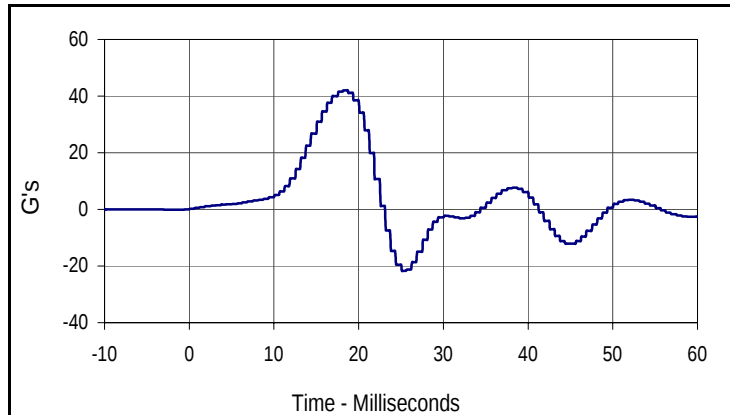
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
SH- Seated Height	mm	889 to 909	892	Pass
HP- Hip Point Height	mm	99 (reference)	99	Pass
RH- Rib Height	mm	502 to 520	512	Pass
KH- Knee Pivot From Back Line	mm	511 to 526	516	Pass
KV- Knee Pivot From Floor	mm	490 to 505	493	Pass
HW- Hip Width	mm	356 to 391	363	Pass
Overall Test Results				Pass

Test Program: SID / HIII Thorax Lateral Impact
 ATD Serial No.: 274

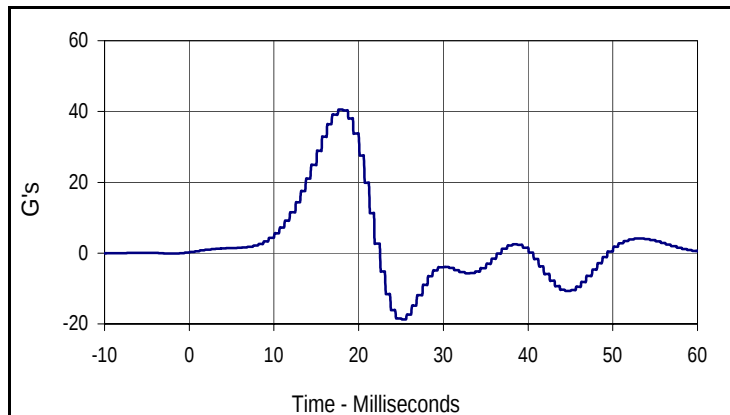
Test Date: 12/7/09
 Test I.D.: TH10D



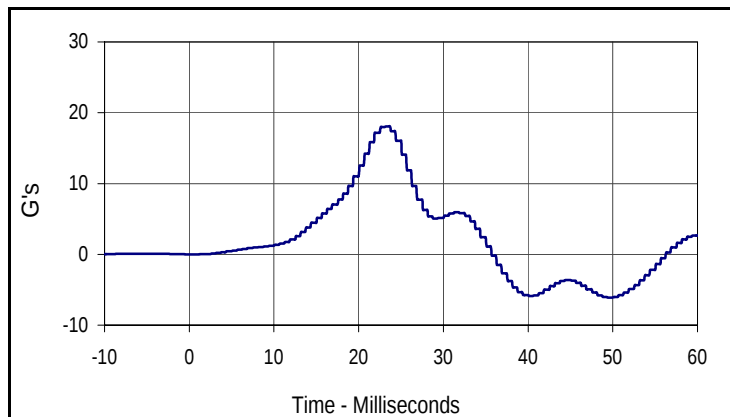
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.27	Pass
Upper Rib Acceleration	G's	37.0 to 46.0	42.0	Pass
Lower Rib Acceleration	G's	37.0 to 46.0	40.6	Pass
Thoracic Spine Acceleration	G's	15.0 to 22.0	18.1	Pass
Overall Test Results			Pass	



Curve Description			
Upper Rib Y Primary			
CURNO	Type	SAE Class	Units
001	FIL	FIR100	G's
Max	Time	Min	Time
42.0	18.2	-21.7	25.1



Curve Description			
Lower Rib Y Primary			
CURNO	Type	SAE Class	Units
002	FIL	FIR100	G's
Max	Time	Min	Time
40.6	17.6	-18.7	25.1



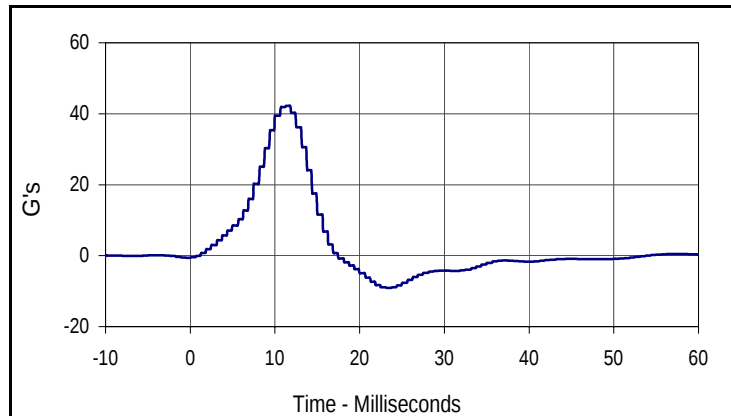
Curve Description			
Lower Spine Y Primary			
CURNO	Type	SAE Class	Units
003	FIL	FIR100	G's
Max	Time	Min	Time
18.1	23.2	-6.1	49.4

Test Program: SID / HIII Pelvis Lateral Impact
 ATD Serial No.: 274

Test Date: 12/7/09
 Test I.D.: PL12A



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
Probe Velocity	m/s	4.21 to 4.33	4.28	Pass
Peak Pelvis Acceleration	G's	40.0 to 60.0	42.2	Pass
Acceleration Time Above 20 G's	Msec.	3.0 to 7.0	4.90	Pass
Overall Test Results				Pass



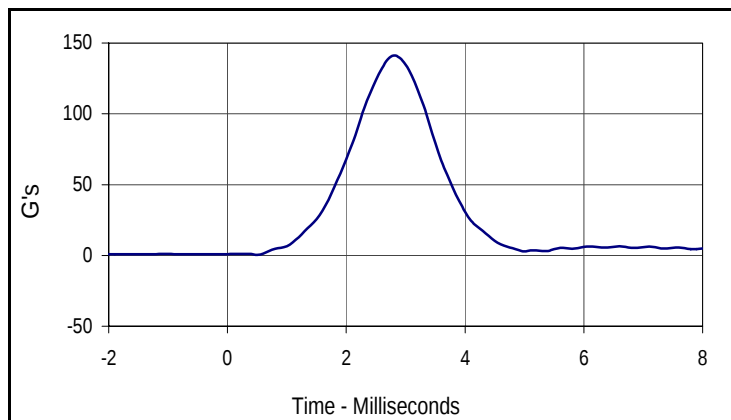
Curve Description			
Pelvis Y Primary			
CURNO	Type	SAE Class	Units
001	FIL	FIR100	G's
Max	Time	Min	Time
42.2	11.3	-9.1	23.2

Test Program: SID / HIII Head Drop Lateral Impact Test
 ATD Serial No.: 274

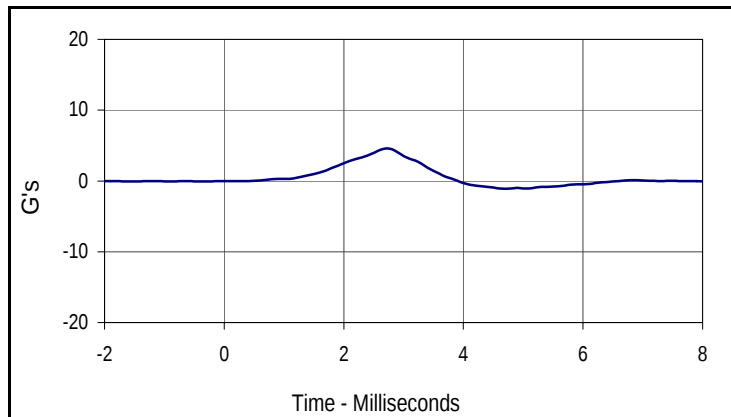
Test Date: 12/7/09
 Test I.D.: HD12A



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	120.0 to 150.0	141.2	Pass
Peak Longitudinal Acceleration	G's	≤15.0	4.6	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	4.5	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
141.2	2.8	0.3	0.5



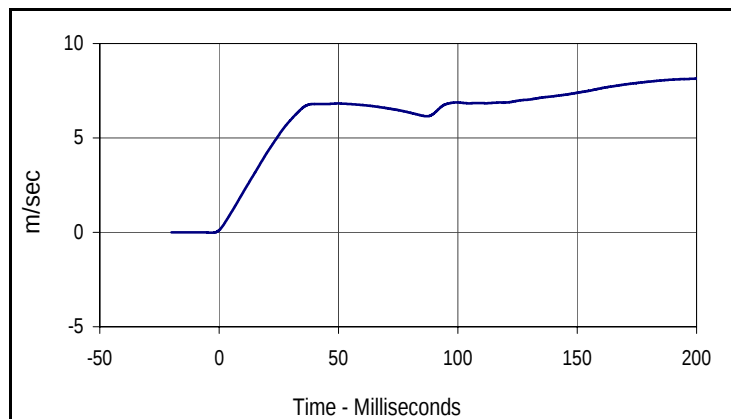
Curve Description			
Head X			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
4.6	2.7	-1.1	4.7

Test Program: SID / HIII Neck Pendulum Lateral Test
 ATD Serial No.: 274

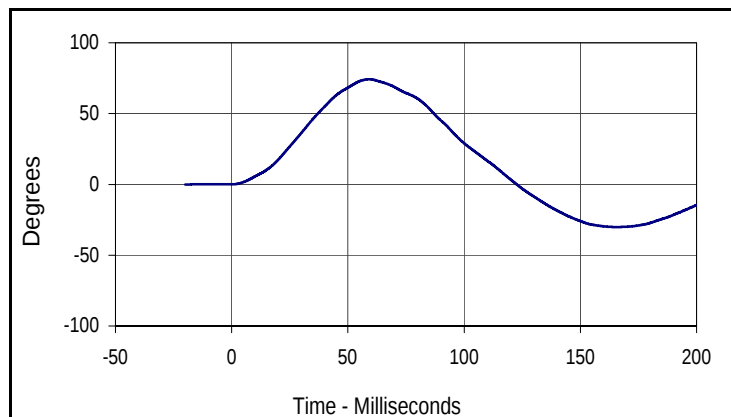
Test Date: 12/7/09
 Test I.D.: NB12A



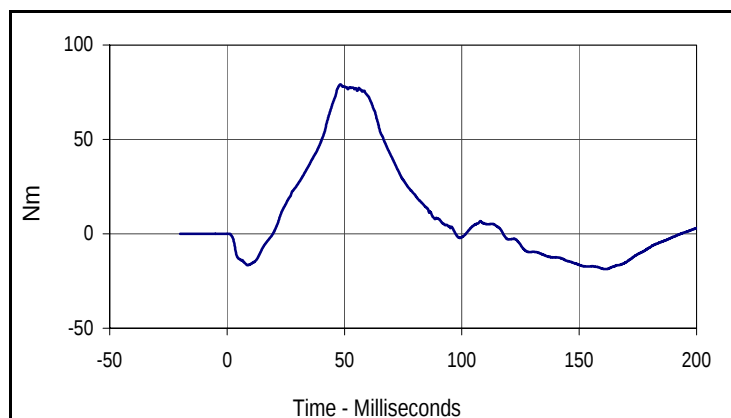
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/sec	6.89 to 7.13	6.90	Pass
Pendulum Deceleration	10 Msec.	m/sec	1.96 to 2.55	2.11	Pass
	20 Msec.	m/sec	4.12 to 5.10	4.21	Pass
	30 Msec.	m/sec	5.73 to 7.01	5.96	Pass
	40 to 70	m/sec	6.27 to 7.64	6.82	Pass
"D" Plane Rotation	Max	Degrees	66.0 to 82.0	74.2	Pass
Max Rotation Time After Peak Moment		Msec.	2.0 to 16.0	10.9	Pass
Rotation Time From Peak to Zero Angle		Msec.	58.0 to 67.0	63.6	Pass
Moment About Occipital Condyle		Nm	73.0 to 88.0	79.2	Pass
Positive Moment Decay, Time To 0 Nm		Msec.	49.0 to 64.0	49.2	Pass
Overall Test Results					Pass



Curve Description			
ion			
CURNO	Type	SAE Class	Units
001	FIL	none	m/sec
Max	Time	Min	Time
8.1	200.0	0.0	-3.0



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	none	Degrees
Max	Time	Min	Time
74.2	59.1	-30.1	165.6



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	none	Nm
Max	Time	Min	Time
79.2	48.2	-18.7	161.4

Test Program: SID / HIII External Measurements
ATD Serial No.: 275

Test Date: 12/8/09
Test I.D.: N/A



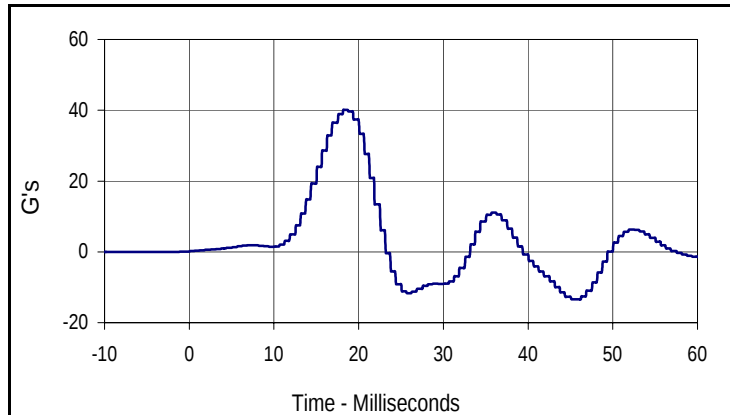
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
SH- Seated Height	mm	889 to 909	895	Pass
HP- Hip Point Height	mm	99 (reference)	99	Pass
RH- Rib Height	mm	502 to 520	515	Pass
KH- Knee Pivot From Back Line	mm	511 to 526	519	Pass
KV- Knee Pivot From Floor	mm	490 to 505	504	Pass
HW- Hip Width	mm	356 to 391	364	Pass
Overall Test Results				Pass

Test Program: SID / HIII Thorax Lateral Impact
 ATD Serial No.: 275

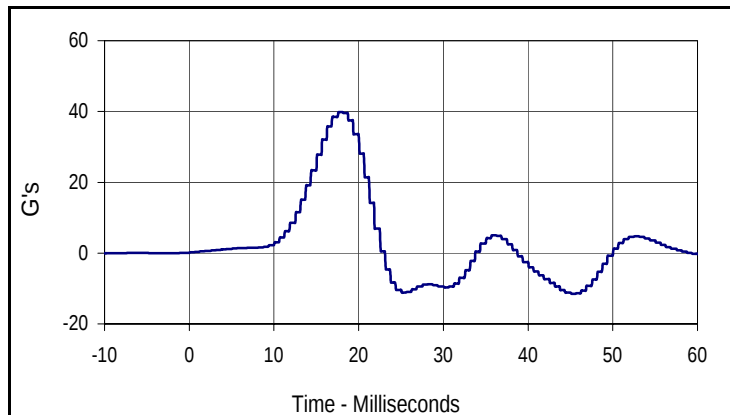
Test Date: 12/8/09
 Test I.D.: TH12B



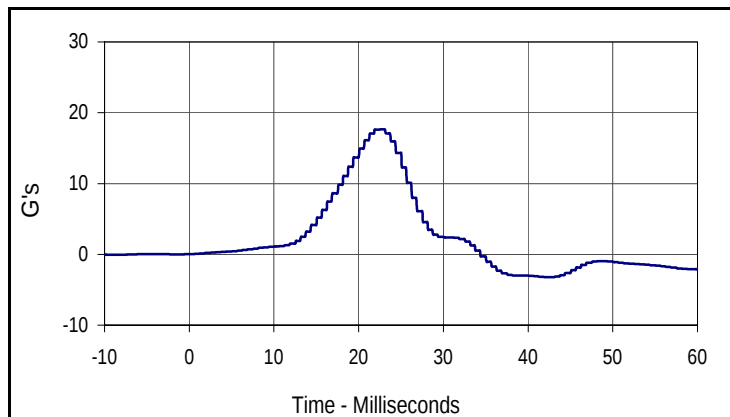
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.26	Pass
Upper Rib Acceleration	G's	37.0 to 46.0	40.1	Pass
Lower Rib Acceleration	G's	37.0 to 46.0	39.9	Pass
Thoracic Spine Acceleration	G's	15.0 to 22.0	17.6	Pass
Overall Test Results			Pass	



Curve Description			
Upper Rib Y Primary			
CURNO	Type	SAE Class	Units
001	FIL	FIR100	G's
Max	Time	Min	Time
40.1	18.2	-13.4	45.7



Curve Description			
Lower Rib Y Primary			
CURNO	Type	SAE Class	Units
002	FIL	FIR100	G's
Max	Time	Min	Time
39.9	17.6	-11.5	45.1



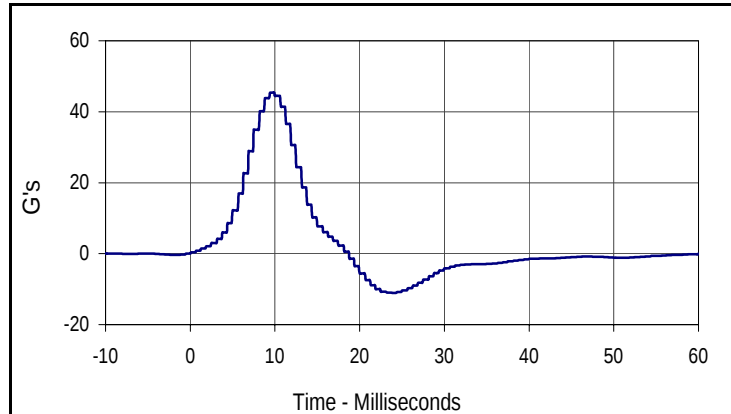
Curve Description			
Lower Spine Y Primary			
CURNO	Type	SAE Class	Units
003	FIL	FIR100	G's
Max	Time	Min	Time
17.6	22.6	-3.2	42.6

Test Program: SID / HIII Pelvis Lateral Impact
 ATD Serial No.: 275

Test Date: 12/8/09
 Test I.D.: PL12B



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
Probe Velocity	m/s	4.21 to 4.33	4.26	Pass
Peak Pelvis Acceleration	G's	40.0 to 60.0	45.4	Pass
Acceleration Time Above 20 G's	Msec.	3.0 to 7.0	4.90	Pass
Overall Test Results				Pass



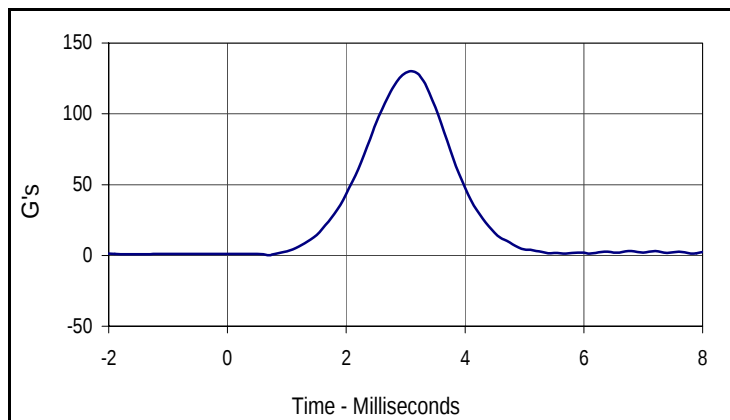
Curve Description			
Pelvis Y Primary			
CURNO	Type	SAE Class	Units
001	FIL	FIR100	G's
Max	Time	Min	Time
45.4	9.4	-11.0	23.8

Test Program: SID / HIII Head Drop Lateral Impact Test
 ATD Serial No.: 275

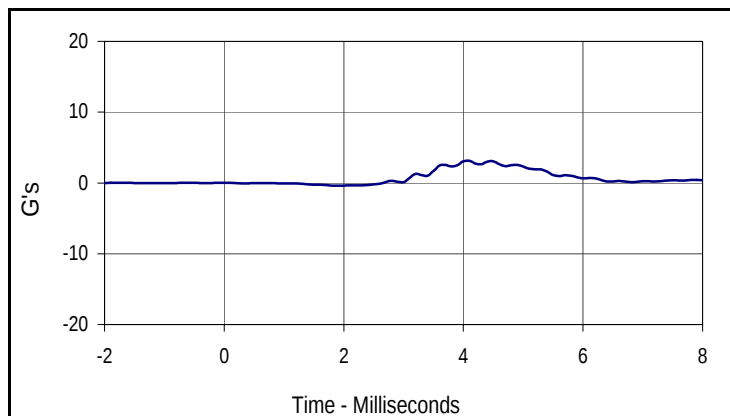
Test Date: 12/8/09
 Test I.D.: HD12C



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	120.0 to 150.0	130.1	Pass
Peak Longitudinal Acceleration	G's	≤15.0	3.2	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	3.3	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
130.1	3.1	0.1	0.7



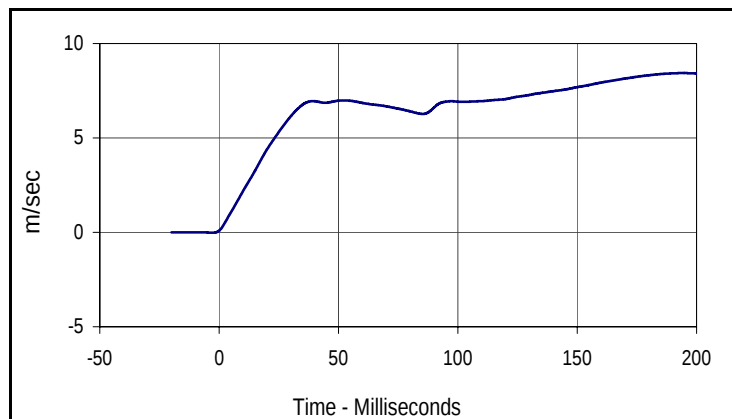
Curve Description			
Head X			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
3.2	4.1	-0.4	1.9

Test Program: SID / HIII Neck Pendulum Lateral Test
 ATD Serial No.: 275

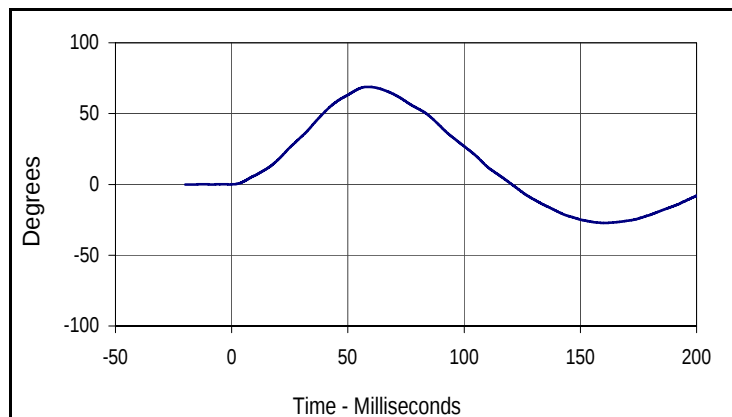
Test Date: 12/8/09
 Test I.D.: NB12D



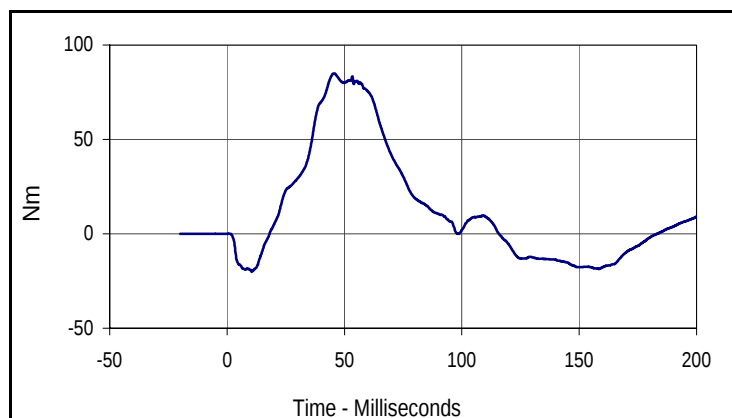
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/sec	6.89 to 7.13	6.93	Pass
Pendulum Deceleration	10 Msec.	m/sec	1.96 to 2.55	2.19	Pass
	20 Msec.	m/sec	4.12 to 5.10	4.38	Pass
	30 Msec.	m/sec	5.73 to 7.01	6.15	Pass
	40 to 70	m/sec	6.27 to 7.64	6.99	Pass
"D" Plane Rotation	Max	Degrees	66.0 to 82.0	68.9	Pass
Max Rotation Time After Peak Moment		Msec.	2.0 to 16.0	13.2	Pass
Rotation Time From Peak to Zero Angle		Msec.	58.0 to 67.0	61.9	Pass
Moment About Occipital Condyle		Nm	73.0 to 88.0	84.9	Pass
Positive Moment Decay, Time To 0 Nm		Msec.	49.0 to 64.0	52.8	Pass
Overall Test Results				Pass	



Curve Description			
ion			
CURNO	Type	SAE Class	Units
001	FIL	none	m/sec
Max	Time	Min	Time
8.4	194.1	0.0	-2.7



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	none	Degrees
Max	Time	Min	Time
68.9	58.7	-27.2	160.4



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	none	Nm
Max	Time	Min	Time
84.9	45.5	-20.1	10.5