

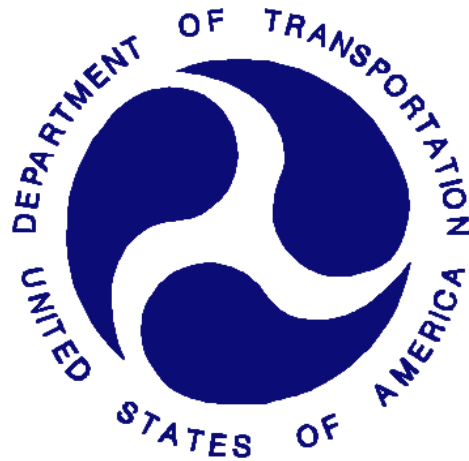
REPORT NUMBER: MCW-DOT-10SN02

**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

2010 DODGE AVENGER SXT 4-DOOR SEDAN

NHTSA NUMBER: MA 0300

**PREPARED BY:
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TEST DATE: 28 OCTOBER 2009

REPORT DATE: 3 NOVEMBER 2009

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
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1200 NEW JERSEY AVE, SE, ROOM W43-410
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Date:

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16. Abstract A 55/28 km/h 90° Moving Deformable Barrier (MDB) New Car Assessment Program (NCAP) side impact was conducted on the subject 2010 Dodge Avenger SXT 4-door sedan to obtain new car assessment and research data indicant of FMVSS No. 214D performance. The test was conducted at the Medical College of Wisconsin (MCW) in Milwaukee, Wisconsin on 28 October 2009. The impact velocity of the Moving Deformable Barrier (MDB) was 62.1 km/h, and the ambient temperature at the struck side of the vehicle was 20 °C. The target vehicle's maximum post test static crush was 265 mm at level 3. The test vehicle's occupant performance is as follows: <table border="1" data-bbox="149 1218 1505 1491"> <thead> <tr> <th></th> <th><u>Units</u></th> <th><u>DRIVER</u></th> <th><u>PASS.</u></th> </tr> </thead> <tbody> <tr> <td>Left upper rib (LUR) acceleration</td> <td>G</td> <td>33.3</td> <td>62.7</td> </tr> <tr> <td>Left lower rib (LLR) acceleration</td> <td>G</td> <td>29.0</td> <td>61.6</td> </tr> <tr> <td>Lower spine (T₁₂) acceleration</td> <td>G</td> <td>43.1</td> <td>59.2</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td></td> <td>38.2</td> <td>61.0</td> </tr> <tr> <td>Pelvis (PEV) acceleration</td> <td>G</td> <td>55.4</td> <td>63.9</td> </tr> <tr> <td>HIC</td> <td></td> <td>115.0</td> <td>418.9</td> </tr> </tbody> </table> The driver's door on the struck side of the vehicle separated from the body at the latches ~950 mm. The passenger door on the struck side and the opposite doors did not open during the side impact event.							<u>Units</u>	<u>DRIVER</u>	<u>PASS.</u>	Left upper rib (LUR) acceleration	G	33.3	62.7	Left lower rib (LLR) acceleration	G	29.0	61.6	Lower spine (T ₁₂) acceleration	G	43.1	59.2	Thoracic Trauma Index (TTI)		38.2	61.0	Pelvis (PEV) acceleration	G	55.4	63.9	HIC		115.0	418.9
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17. Key Words New Car Assessment Program (NCAP) Side impact Side Impact Hybrid III Dummy (SID/HIII) Occupant side impact protection			18. Distribution Statement Copies of this report are available from: U.S. Department of Transportation National Highway Traffic Safety Administration Rulemaking, Office of Crashworthiness Standards, NVS-111 1200 New Jersey Ave, SE, Room W43-410 Washington, D.C. 20590																														
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SECTION 1

PURPOSE AND TEST PROCEDURE

PURPOSE

This side impact test was conducted as part of the FY'09 test program sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-09-D-00123. The purpose of this test was to evaluate side impact protection of a manufactured by Toyota Motor Corporation.

TEST PROCEDURE

The side impact test was conducted in accordance with the Laboratory Test Procedure for New Car Assessment Program 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 NCAP SIDE IMPACT TEST

A 2010 Dodge Avenger SXT 4-door sedan was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) modeling a 90° impact as if the test vehicle were moving forward at 28 km/h perpendicular to and across the path of the MDB traveling forward at 55 km/h. Here the test vehicle was stationary and positioned 27° from perpendicular to the MDB tow road guidance system and the MDB was towed 27° ("crabbed") from the guidance system. [See p 26.] The 1695.5 kg test vehicle was impacted by the 1361.7 kg MDB traveling at a speed of 62.1 km/h (measured inline with the guidance system.) The test was conducted at the Medical College of Wisconsin on 28 October 2009.

Two (2) 50th percentile adult male Hybrid III-Side Impact Dummies (SID/HIIIs) were placed in designated seating positions within the test vehicle: one (1) driver, and one (1) left rear passenger; serial numbers 058 and 137 respectively. Each SID/HIII was instrumented in the following locations:

- Left upper rib uni-axial (Y) accelerometers (primary and redundant)
- Left lower rib uni-axial (Y) accelerometers (primary and redundant)
- Lower thoracic spine uni-axial (Y) accelerometers (primary and redundant)
- Pelvis uni-axial (Y) accelerometers (primary and redundant)
- Head center of gravity tri-axial (X, Y, Z) accelerometers (primary and redundant)
- Upper neck tri-axial (X, Y, Z) force load cells and tri-axial (X, Y, Z) moment load cells

The test vehicle was instrumented with twenty-one (21) structural accelerometers and the MDB was instrumented with six (6) accelerometers. All data channels were recorded with a fully self contained on-board DTS TDAS Pro Data Acquisition System. The data were digitally sampled at 12.5 kHz and processed according to SAEJ211-1 (March 1995).

One (1) real-time video camera and nine (9) high-speed video cameras were used to document the impact event. The pre test and post test conditions were recorded by one (1) real-time motion picture camera. Camera locations and pertinent camera information are documented in the data sheets. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

All of the above was conducted in accordance to the Laboratory Test Procedure for New Car Assessment Program Side Impact Testing dated November 2002.

2.2 GENERAL COMMENTS

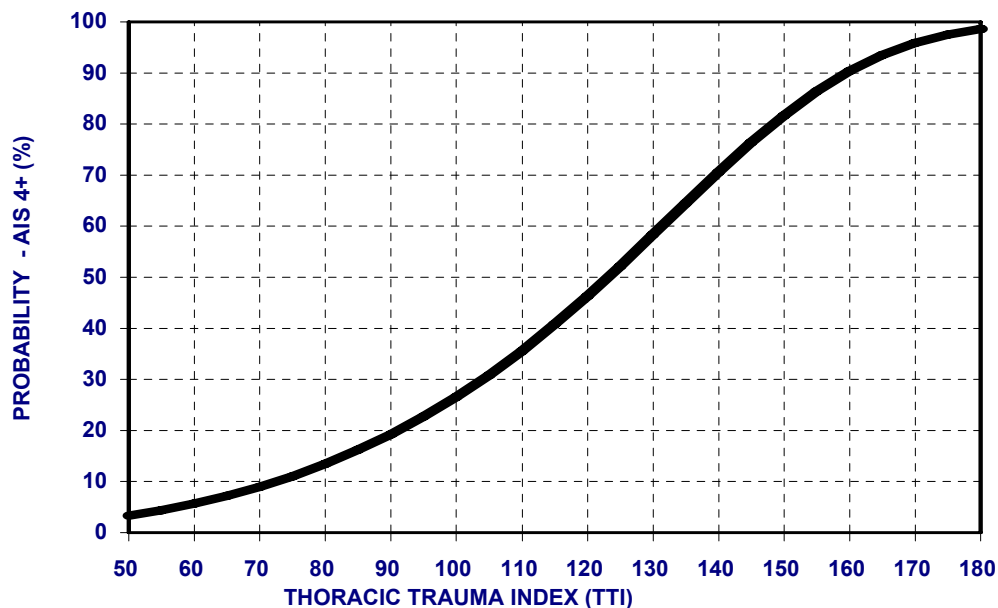
The test vehicle sustained a maximum static crush of 265 mm at level 3, 1650 mm rearward of the vertical impact line.

Test summaries, post test observations, vehicle, MDB, camera, and occupant measurements are presented in datasheets 1-16. Appendix A contains the still photograph prints. Appendix B contains selected driver and passenger SID/HIII's response data traces. Appendix C contains the SID/HIII's configuration and performance verification data.

OCCUPANT SUMMARY		
Injury criteria	Driver (P1)	Left rear passenger (P4)
HIC36	115.0	418.9
T1 (ms)	37.0	48.1
T2 (ms)	67.7	69.8
TTI	38.2	61.0
Maximum pelvic acceleration (G)	55.4	63.9

Head Injury Criterion (HIC) is the standardized calculation using resultant head acceleration to assess head injury. Generally, a higher HIC represents an increase in the likelihood of a serious head injury. HIC36 specifies a time 'window' of 36 milliseconds over which the integral is calculated. T1 and T2 represent the time of the lower and upper bounds of the window in which the HIC is calculated.

The Thoracic Trauma Index (TTI) is computed from the crash test dummy's accelerations at the upper rib, lower rib, and lower spine to quantify the risk of a serious thorax injury during a typical near side impact crash. The injury risk curve is shown below. The vertical axis of the curve is the probability of sustaining an Abbreviated Injury Scale (AIS) level 4 or greater injury. AIS is an anatomical scoring system used to assess a 'threat to life' associated with a specific injury; injuries are ranked on a scale of 1 to 6, with 1 being 'minor', 4 'severe' and 6 an 'unsurvivable' injury. A lower TTI corresponds to a decreased probability of a severe thorax injury. (www.trauma.org)



The maximum pelvic acceleration is used to assess the likelihood of injury to the pelvis during a side impact crash. Higher pelvic accelerations correspond to an increase in the likelihood of sustaining a severe pelvis injury.

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION				
Restraint type	Left front (driver) occupant Location 01		Left rear (passenger) occupant Location 04	
	Installed	Operation	Installed	Operation
Front airbag	Yes – steering wheel	Did not deploy	No	N/a
Side airbag	Yes – seat back	Deployed	No	N/a
Head airbag	No	N/a	No	N/a
Curtain airbag	Yes – side header	Deployed	Yes – side header	Deployed
Seat belt pretensioner	Yes	Deployed	No	N/a
Seat belt load limiter	Yes	N/a	No	N/a

These test data and report can be found in detail on the NHTSA website at www.nhtsa.dot.gov.

A brief summary of the crash test can be located at www.safercar.gov

TEST NOTES

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

VEHICLE INFORMATION		VEHICLE OPTIONS	
Year	2010	Air conditioning	Yes
Make	Dodge	Anti-lock brakes	Yes
Model	Avenger SXT	AM/FM radio	Yes
Body style	4-door sedan	All wheel drive	No
NHTSA number	MA 0300	Combo bag	No
MCW test ID	10SN02	Console	Yes
VIN	1B3CC4FB2AN114091	Cruise/speed control	Yes
Color	Black	Curtain bag	Yes - front and rear
Build date	September 2009	Disc brakes	Yes - front and rear
Engine No. of cylinders	4	Frontal bag	Yes
Engine Displacement (L)	2.4	Power brakes	Yes
Engine Placement	Lateral	Power door locks	Yes
Transmission	Automatic	Power steering	Yes
Final drive	Front wheel drive	Power windows	Yes
Delivery date	October 14, 2009	Side bag	Yes - front only
Odometer reading	83 miles	Tilt steering wheel	Yes

CERTIFICATION LABEL INFORMATION			
Manufacturer	Chrysler Group, LLC	GVWR (kg)	2087
		GAWR front (kg)	1180
Date of manufacture	September 2009	GAWR rear (kg)	1007

SEAT INFORMATION			
	Number of occupants	Seat type	Seat back type
Front	2	Bucket	Adjustable
Back	3	Split bench	Fixed
Third	0		
Total	5		

CARGO CAPACITY CALCULATION			
	Units	Value	Reference label
Vehicle maximum capacity	kg	392	(A)
Number of occupants (7) X 68.04 kg	kg	340.2	(B)
Cargo capacity (RCLW) †	kg	51.8	(C) = (A)-(B) †

† Note if RCLW is > 136.1 kg (300 lbs), use 136.1 kg

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

TEST VEHICLE MASS INFORMATION				
	Units	As delivered	As tested	Fully loaded
Left front	kg	467.2	508.5	524.8
Right front	kg	434.5	428.6	435.9
Left rear	kg	291.7	396.4	378.8
Right rear	kg	296.2	362	363.3
Total front	kg	901.7	937.1	960.7
% Total front	%	60.5	55.3	56.4
Total rear	kg	587.9	758.4	15
% Total rear	%	39.5	44.7	43.6
Total	kg	1489.6	1695.5	1702.8

As delivered mass is vehicle mass with maximum fluids

Fully loaded mass is the as delivered mass + 1 or 2 ATD's + RCLW

As tested mass is the mass of test vehicle with 1 or 2 ATD's + instrumentation + ballast (if necessary)

CALCULATION OF TEST VEHICLE TARGET MASS			
	Units	Value	Reference label
As delivered test vehicle mass	kg	1489.6	(D)
Maximum cargo capacity (RCLW)	kg	51.8	(C)
Mass of SID HIII's (1 or 2)	kg	161.4	(E)
Test vehicle target mass (TVTW)	kg	1702.8	(D) + (C) + (E)

As tested mass must be 4.5 kg to 9 kg less than the test vehicle target mass

BALLAST INFORMATION	
Mass of ballast added (kg)	22.7 kg
Location	In trunk on the spare tire
<u>Components removed from test vehicle</u> Non-struck front and rear door glasses; Right rear tail-light	

IMPACT LOCATION ON TEST VEHICLE	
Wheelbase	2770 mm
Nominal impact point	445 mm rearward of front axle
Actual impact point	443 mm rearward of front axle

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

TEST VEHICLE ATTITUDES				
	Units	As delivered	As tested	Fully loaded
Left front	mm	775	764	757
Right front	mm	773	770	765
Left rear	mm	770	727	722
Right rear	mm	771	741	741
CG (X)	mm	1093.2	1239.0	1207.5

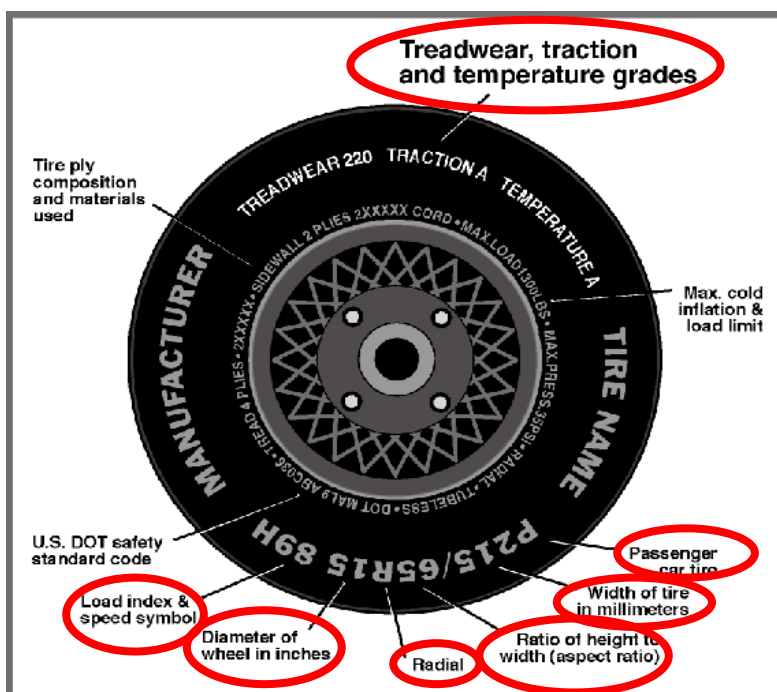
As tested attitudes must be between as delivered and fully loaded attitudes

CG (X) measured rearward from front axle centerline

AUTOMATIC DOOR LOCK (ADL) INFORMATION				
	Left front	Left rear	Right front	Right rear
ADL present	Yes	Yes	Yes	Yes
ADL deactivated	No	No	No	No
Deactivation method	N/a			
Door lock status	Locked	Locked	Locked	Locked

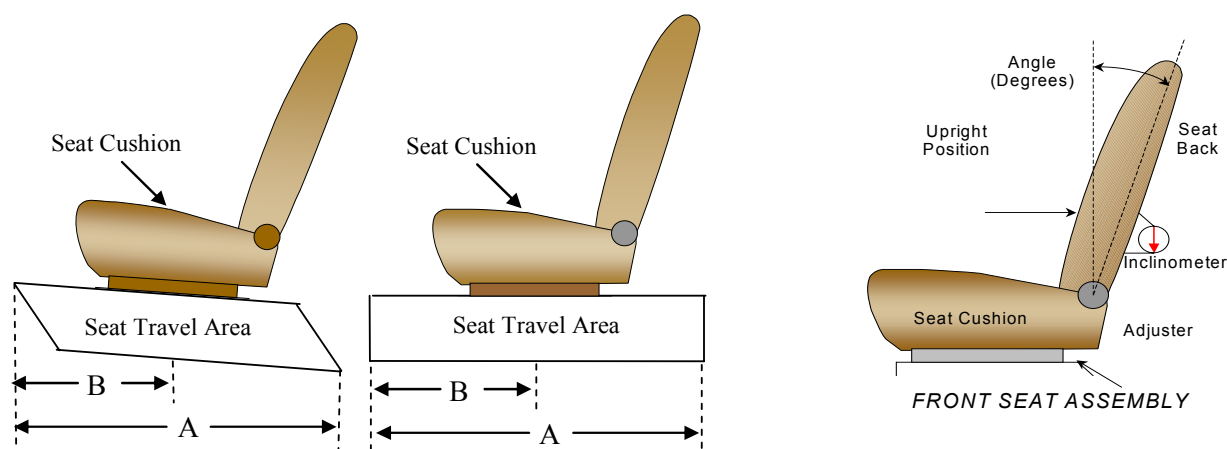
DATA SHEET NO. 2

TEST VEHICLE TIRE INFORMATION



TIRE INFORMATION		
Measured Parameter	Front	Rear
Maximum tire pressure (kPa)	300	300
Cold / test pressure (kPa)	220	220
Recommended tire size	P215/65R16	P215/65R16
Tire size on vehicle	P215/65R16	P215/65R16
Tire manufacturer	Firestone	Firestone
Tire name	FR690	FR690
Tire type	Tubeless radial	Tubeless radial
Tire width (mm)	215	215
Ratio of height to width (aspect ratio)	65	65
Radial	Yes	Yes
Wheel diameter (inches)	16	16
Load index & speed symbol	96T	96T
Tread wear	440	440
Traction grade	A	A
Temperature grade	B	B

DATA SHEET NO. 3 TEST VEHICLE INFORMATION



Seat fore/aft positions

The total seat travel was measured from forward most position to rearmost position, irrespective of vertical seat height in those positions. The seat was set at the longitudinal mid position with vertical adjustment at the lowest position obtainable for both the driver and passenger.

SEAT FORE/AFT POSITION		
	Left front seat	Left rear seat
Type	Adjustable	Fixed
Fore/aft total travel (mm)	278	N/a
Number of detents	35	N/a
Test position	14th notch from full forward	N/a

‡Full forward = notch 0

Seat back position

The driver and passenger seat back is positioned according to the manufacturers designated angle.

SEAT BACK POSITION		
	Left front seat	Left rear seat
Seat back angle @ head rest post	12.6°	Non-adjustable
Test position	9th notch from full upright	As positioned

‡Full upright = notch 0

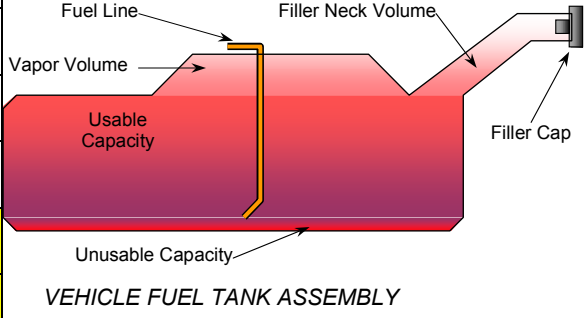
Seat belt position

The adjustable anchorage locations are positioned according to the manufacture's specifications.

SEAT BELT ADJUSTABLE ANCHORAGE (D-RING)		
	Left Front Seat	Left Rear Seat
Adjustable anchor present	Yes	No
Total travel (mm)	75	N/a
Test position	1st detent with 0 being full up	As positioned

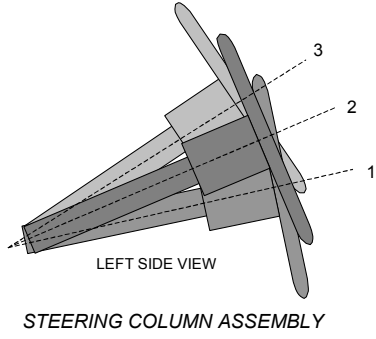
DATA SHEET NO. 3
TEST VEHICLE INFORMATION (CONTINUED)

Fuel tank information

STODDARD INFORMATION			
Description	Units	Value	
Usable capacity of standard equipment fuel tank	L	64.0	
Usable capacity of optional equipment fuel tank	L	5.68	
Usable capacity of vehicle used for certification testing to requirements	L	64.0	
Amount of stoddard added for test	L	59.50	
% Usable capacity (92%-94%)	%	93.0	
Operational instructions	None		
Electric fuel pump present	Yes		
Operating condition of test vehicle for fuel pump operation	The fuel pump is activated when the ignition is turned on.		

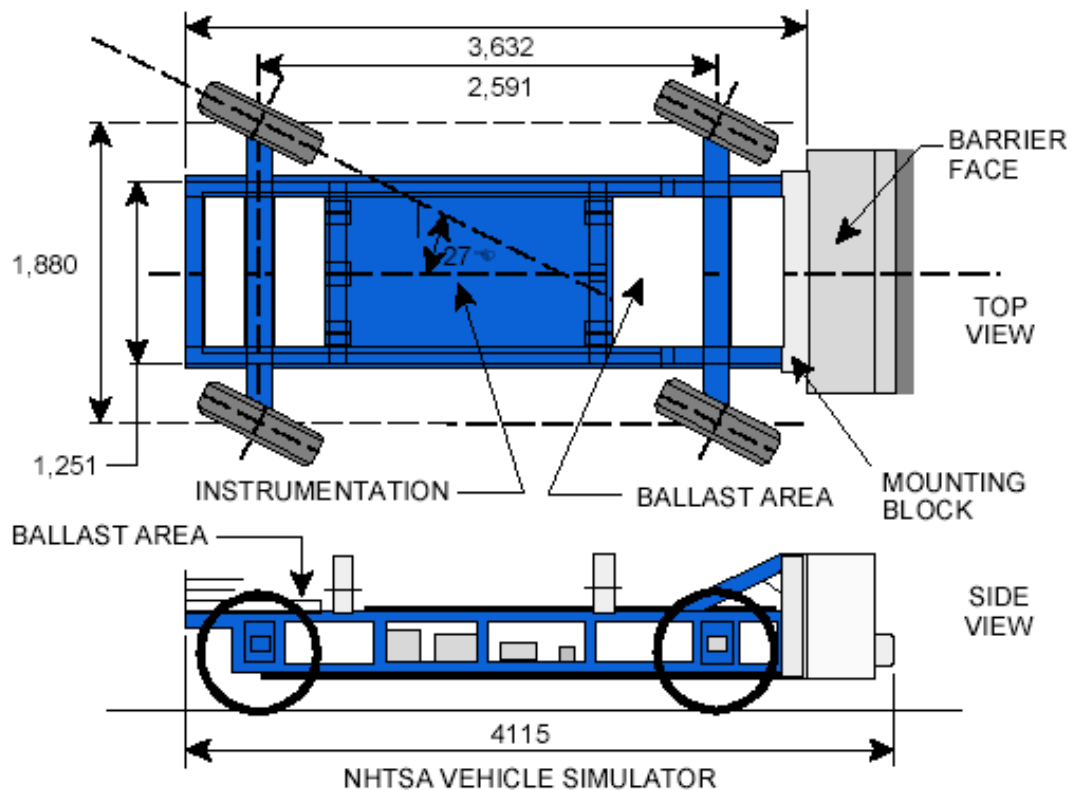
Steering wheel information

Steering wheel and column adjustments are placed according to the manufacturer's specifications.

ADJUSTABLE STEERING COLUMN		
Adjustable column	Yes	
Steering wheel angle in upper most position	22°	
Steering wheel fore/aft travel	44 mm	
Number of detents	None	
Test position	Steering wheel positioned 19° relative to side sill panel. The steering column also had a telescope adjustment and it was set in the mid position	

DATA SHEET NO. 4
MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS

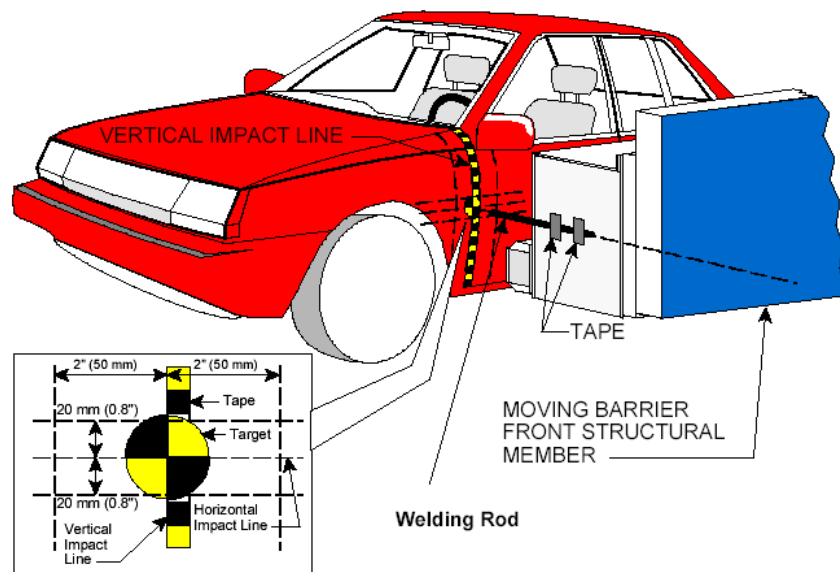
MDB SPECIFICATIONS				
	Units	Specification	Range	Value
Overall Width of Framework Carriage	mm	1251	1226-1276	1245
Overall Length w/Impactor Face	mm	4115	4090-4140	4101
Overall Length w/o Impactor Face	mm	3632	3607-3657	3617
Longitudinal Cg from Front Axle	mm	1123	1098-1148	1135
Track Width	mm	1880	1855-2005	1864
Mass	kg	1361	1356.5-1365.5	1361.7
MOI (X)	kg-m ²	508	483-533	496
MOI (Y)	kg-m ²	2263	2150-2376	2227
MOI (Z)	kg-m ²	2572	2443-2701	2609



DATA SHEET NO. 4
MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS (CONTINUED)

MDB MASS INFORMATION		
	Units	As tested
Left front	kg	422.3
Right front	kg	338.8
Left rear	kg	259.5
Right rear	kg	341.1
Total front	kg	761.1
% Total front	%	55.9
Total rear	kg	600.6
%Total rear	%	44.1
Total	kg	1361.7

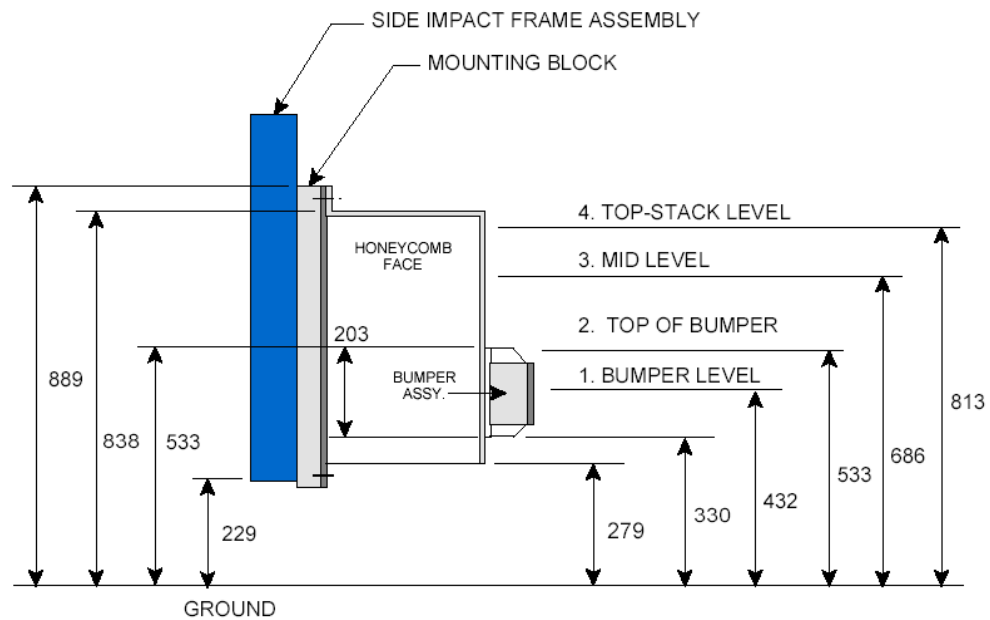
IMPACT SPEED				
	Units	Specification	Range	Value
Primary speed trap	kmh	61.9	61.1-62.7	62.1
Redundant speed trap	kmh	61.9	61.1-62.7	62.0



IMPACT POINT INFORMATION		
Vertical impact line is	445 mm rearward of front axle	
Actual impact is	443 mm rearward of front axle	
Measurement	Value	Tolerance
Impact point distance from vertical impact line	2 mm forward	+/- 50 mm
Impact point distance from horizontal impact line	6 mm below	+/- 20 mm

DATA SHEET NO. 4
MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS (CONTINUED)

HONEYCOMB FACE CLEARANCE					
	Units	Specification	Range	Left	Right
Bottom of barrier	mm	279	276-282	279	278
Bottom of bumper	mm	330	327-333	330	329
Top of bumper	mm	533	530-536	533	531
Top of barrier	mm	838	835-841	836	836



RIGHT SIDE VIEW

**DATA SHEET NUMBER 5
POST TEST OBSERVATIONS**

TEST DUMMY INFORMATION AND CONTACT POINTS		
Description	Left front seat	Left rear seat
Dummy type / serial no.	SID HIII/058	SID HIII/137
Head contact	Front and side of head to side curtain airbag; top of head to roof rail	Top of head to the roof rail; chin to curtain side airbag
Upper torso contact	To torso side airbag	To interior door panel 140 mm below window sill
Lower torso contact	To torso side airbag	To interior door panel 245 mm below window sill
Left leg contact	To interior door panel along bottom of the armrest	To interior door panel along bottom of the armrest
Left knee contact	To the bottom of the armrest 330 mm below window sill	To interior door panel 355 mm below window sill

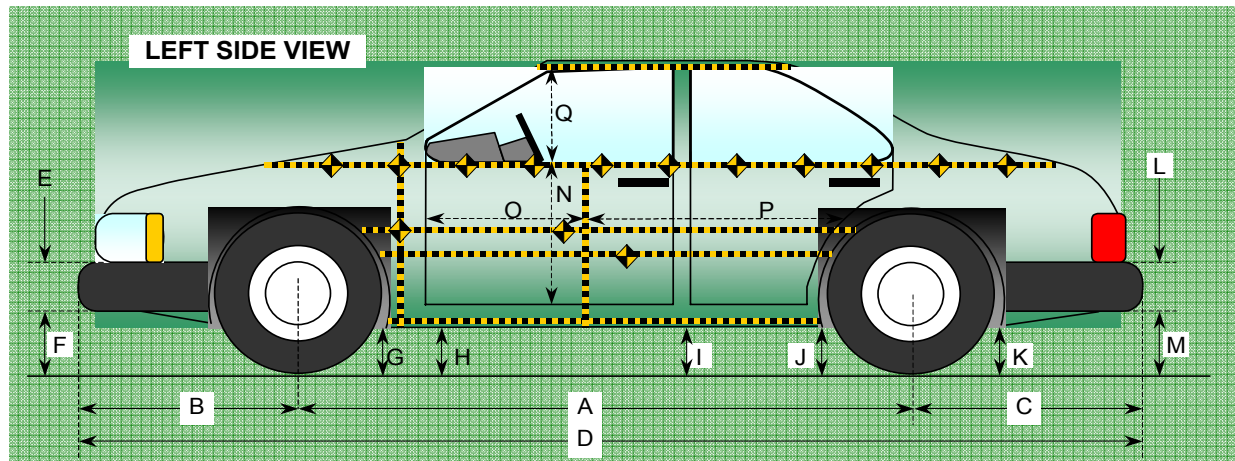
POST TEST DOOR OPENING AND SEAT TRACK INFORMATION		
Description	Front	Rear
Locked/unlocked doors	Locked	Locked
Left side door opening	Opened ~950 mm	Closed/latched/inoperable
Right side door opening	Closed/latched/operable	Closed/latched/operable
Seat movement	No seat crush	46 mm of seat crush
Seat back failure	None	None

POST TEST STRUCTURAL OBSERVATIONS	
Critical areas of performance	Observations/conclusions
Pillar performance	No damage
Sill separation	Max. separation of 140 mm at C-pillar
Windshield damage	No damage
Window damage	No damage
Other notable effects	Driver door opened ~950 mm immediately following impact

DATA SHEET NUMBER 5
POST TEST OBSERVATIONS (CONTINUED)

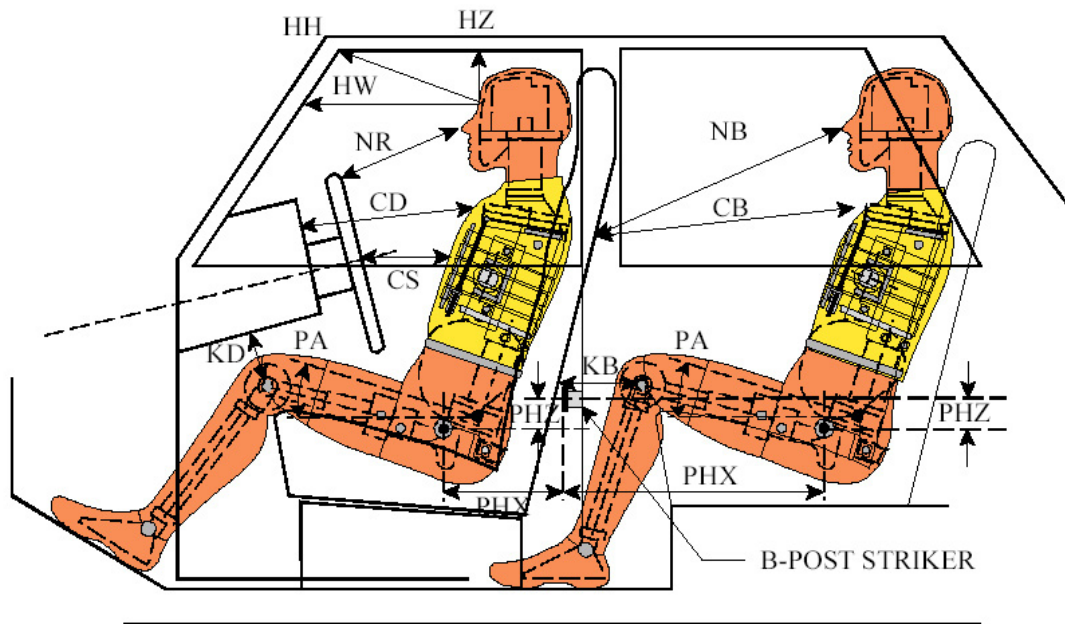
SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION				
Restraint Type	Left front (Driver) occupant Location 01		Left rear (passenger) occupant Location 04	
	Installed	Operation	Installed	Operation
Front airbag	Yes - steering wheel	Did not deploy	No	N/a
Side airbag	Yes - seat back	Deployed	No	N/a
Head airbag	No	N/a	No	N/a
Curtain airbag	Yes - roof rail	Deployed	Yes - roof rail	Deployed
Seat belt pretensioner	Yes	Deployed	No	N/a
Seat belt load limiter	Yes	N/a	No	N/a

DATA SHEET NUMBER 6
VEHICLE PRE AND POST MEASUREMENTS



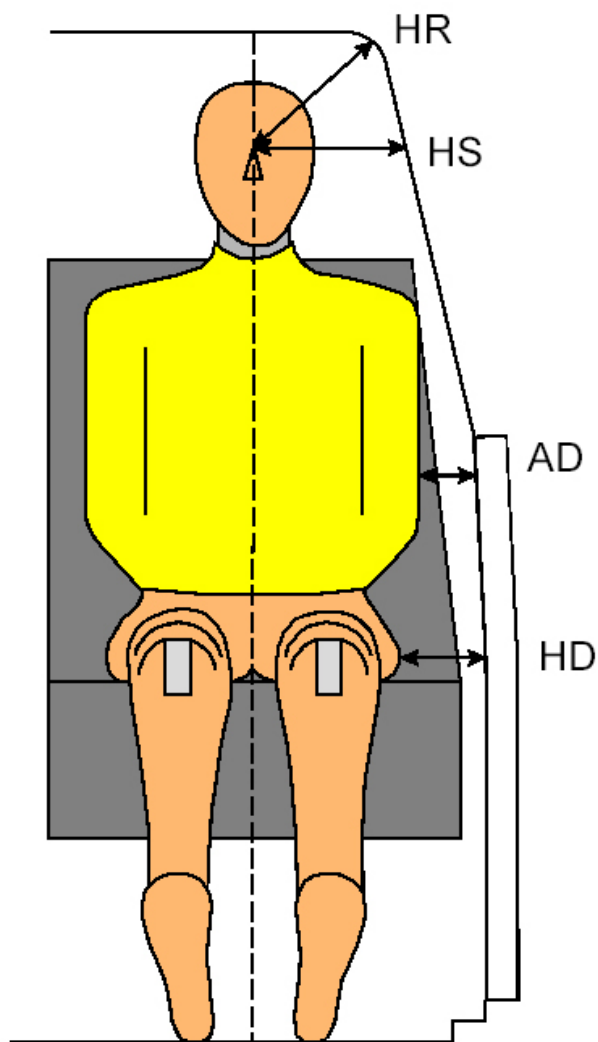
VEHICLE DIMENSIONS				
Code	Description	Pre test	Post test	Change
		mm	mm	mm
A	Wheelbase	2770	2740	-30
B	Front axle to front side of vehicle	787	801	14
C	Rear axle to rear side of vehicle	873	875	2
D	Total length at centerline	4850	4854	4
E	Front bumper thickness	278	278	0
F	Front bumper bottom to ground	276	291	15
G	Sill height at front wheel well	315	291	-24
H	Sill height at front door leading edge	243	254	11
I	Sill height at b-pillar	257	256	-1
J1	Sill height at rear wheel well	190	149	-41
J2	Pinch weld height at rear wheel well	272	242	-30
K	Sill height aft of rear wheel well	325	281	-44
L	Rear bumper thickness	221	221	0
M	Rear bumper bottom to ground	479	442	-37
N	Sill height to window bottom sill	745	670	-75
O	Front door leading edge to impact C/L	1114	1048	-66
P	Rear door trailing edge to impact C/L	960	789	-171
Q	Front window opening	440	440	0
R	Right side length	4430	4427	-3
S	Left side length	4430	4416	-14
T	Vehicle width at b-pillar	1825	1636	-189

DATA SHEET NUMBER 7
SID HIII LONGITUDINAL CLEARANCES



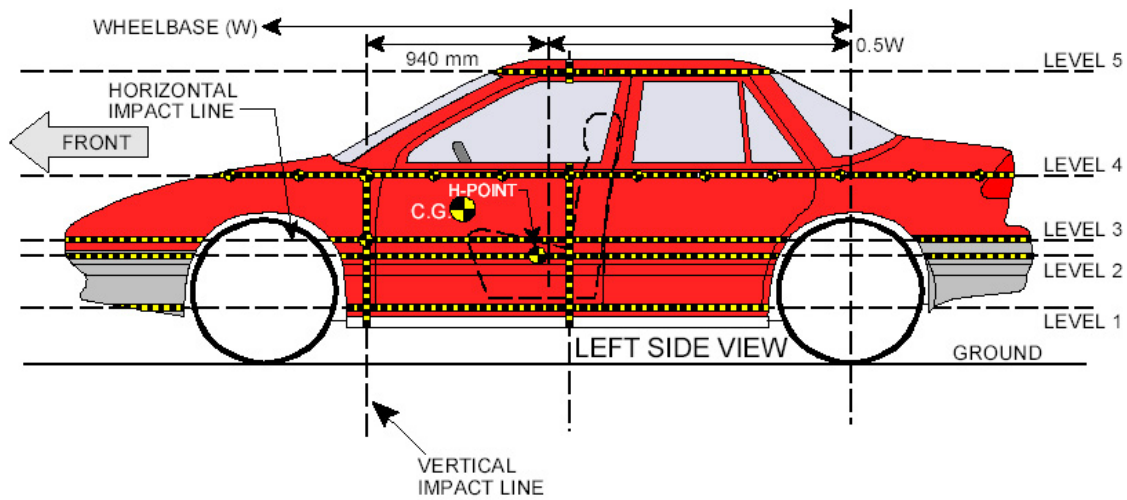
SID HIII LONGITUDINAL CLEARANCE MEASUREMENTS					
Driver code	Pass. code	Measurement description	Units	Left front seat	Left rear seat
		ATD serial number	-	058	137
HH	-	Head to header	mm	420	N/a
HW	-	Head to windshield	mm	689	N/a
HZ	HZ	Head to roof	mm	211	182
NR	NB	Nose to rim/nose to seatback	mm	416	631
CD	CB	Chest to dash or seatback	mm	535	576
CS	-	Chest to steering wheel	mm	334	N/a
KDL	KBL	Left knee to dash or seatback length	mm	182	223
KDA	KBA	Left knee to dash or seatback angle	°	21.3	14.0
KDR	KBR	Right Knee to dash or seatback length	mm	150	242
KDA	KDA	Right knee to dash or seatback angle	°	18.4	14.6
PA	PA	Pelvic angle	°	23.6	23.1
PHX	PHX	H-Point to striker (x-axis)	mm	198	183
PHZ	PHZ	H-Point to striker (z-axis)	mm	203	299

DATA SHEET NUMBER 8
SID HIII LATERAL CLEARANCES



SID HIII LATERAL CLEARANCE MEASUREMENTS				
Code	Measurement description	Units	Left front seat	Left rear seat
-	ATD serial number	-	058	137
HR	Head to side header	mm	182	225
HS	Head to side window	mm	338	330
-	Shoulder to door	mm	112	138
AD	Arm to door	mm	120	134
HD	H-point to door	mm	147	156

DATA SHEET 9 VEHICLE SIDE MEASUREMENTS



VEHICLE STATIC CRUSH SUMMARY				
Level	Description	Height above ground (mm)	Maximum static crush (mm)	Longitudinal (X) distance from impact point (mm)
5	Window top	1394	54	1500
4	Window sill	968	125	1200
3	Mid-door	625	265	1650
2	Driver H-point	520	264	1350
1	Axle centerline or sill top	269	116	900
Maximum static crush		265 mm at level 2 1650 mm rearward from vertical impact line		

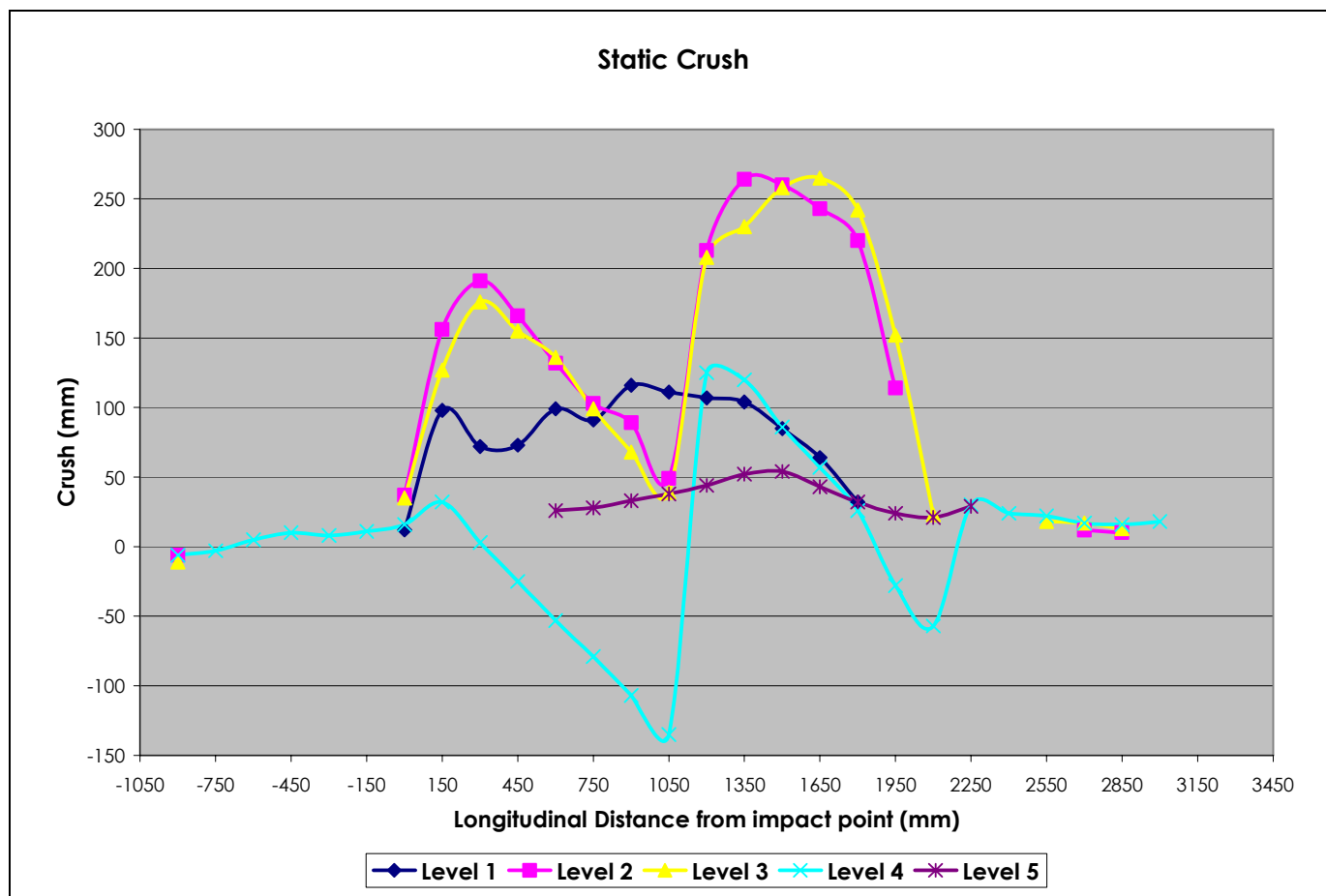
Height measurements taken 750 mm rearward from vertical impact line.

DATA SHEET 10
VEHICLE STATIC CRUSH PROFILE

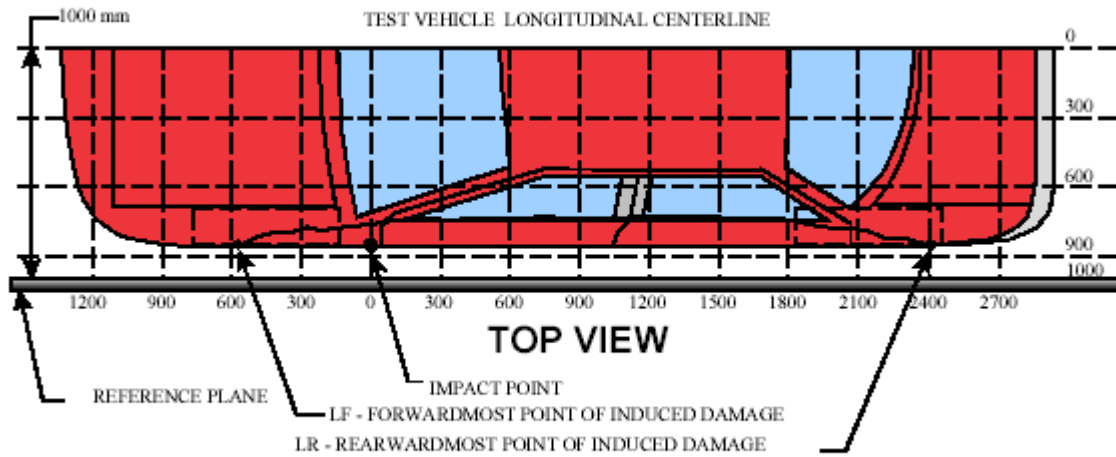
Note: All dimensions are in millimeters with a tolerance of ± 3 mm

TEST VEHICLE STATIC CRUSH																
Level	1			2			3			4			5			
Height	269			520			625			968			1394			
	Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush	
DISTANCE IN MILLIMETERS (mm) FROM IMPACT POINT	-1050															
	-900			391	385	-6	405	394	-11	490	484	-6				
	-750									474	471	-3				
	-600									456	461	5				
	-450									447	457	10				
	-300									438	446	8				
	-150									435	446	11				
	0	377	389	12	347	384	37	351	386	35	428	444	16			
	150	396	494	98	353	509	156	350	477	127	430	462	32			
	300	394	466	72	350	541	191	348	524	176	433	436	3			
	450	391	464	73	349	515	166	347	502	155	432	407	-25			
	600	390	489	99	348	480	132	346	482	136	431	378	-53	625	651	26
	750	389	480	91	347	450	103	345	444	99	430	351	-79	643	671	28
	900	390	506	116	348	437	89	344	412	68	431	324	-107	656	689	33
	1050	391	502	111	348	397	49	345	384	39	433	298	-135	662	700	38
	1200	394	501	107	350	563	213	346	554	208	435	560	125	665	709	44
	1350	396	500	104	352	616	264	349	579	230	438	558	120	667	719	52
	1500	399	484	85	355	615	260	352	610	258	444	530	86	668	722	54
	1650	404	468	64	359	602	243	356	621	265	447	504	57	665	708	43
	1800	391	423	32	363	583	220	360	602	242	444	470	26	663	695	32
	1950				335	449	114	352	504	152	440	412	-28	657	681	24
	2100							332	355	23	447	390	-57	654	675	21
	2250										454	484	30	642	671	29
	2400										463	487	24			
	2550							346	364	18	477	499	22			
	2700				361	373	12	390	407	17	493	510	17			
	2850				427	437	10	425	438	13	510	526	16			
	3000										530	548	18			
	3150															
	3330															

DATA SHEET 10
VEHICLE STATIC CRUSH PROFILE (CONTINUED)

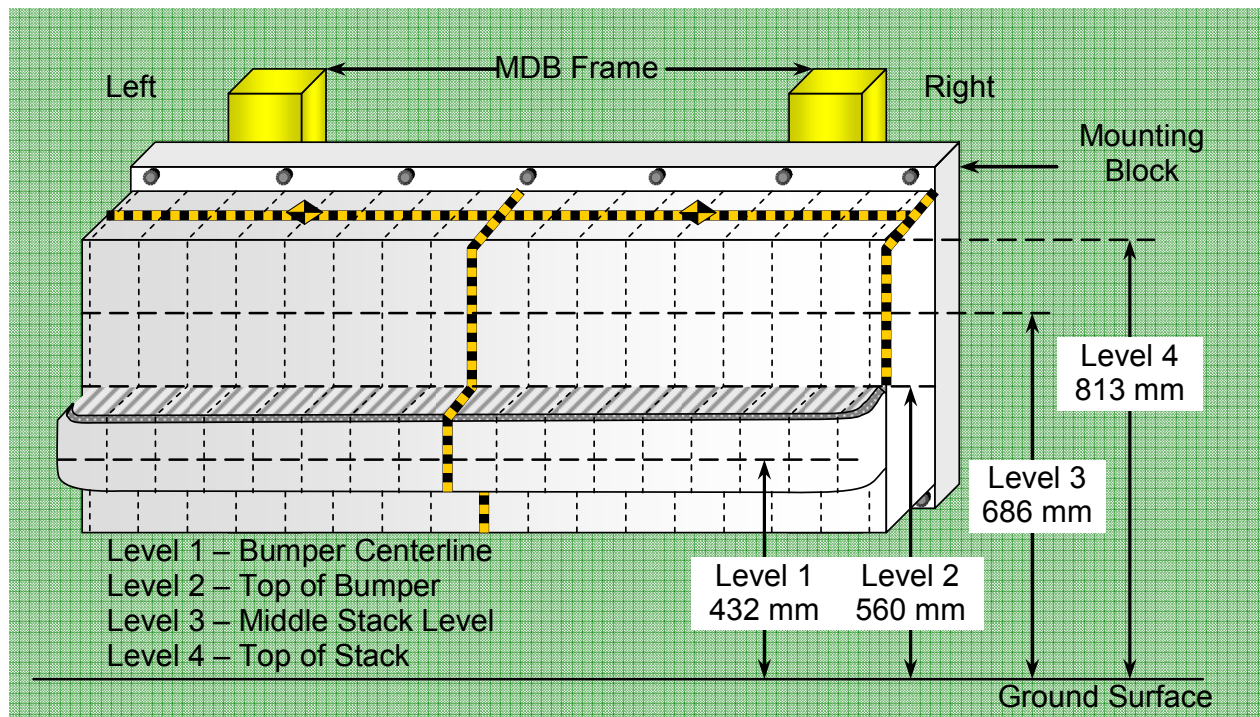


DATA SHEET 11
VEHICLE DAMAGE PROFILE DISTANCES (DPD)



DPD MEASUREMENTS				
	DPD measurement (mm)	Pre test (mm)	Post test (mm)	Crush (mm)
1	-150	364	364	0
2	330	355	524	169
3	810	346	424	78
4	1290	342	574	232
5	1770	349	615	266
6	2250	357	357	0

DATA SHEET 12
DEFORMABLE BARRIER STATIC CRUSH

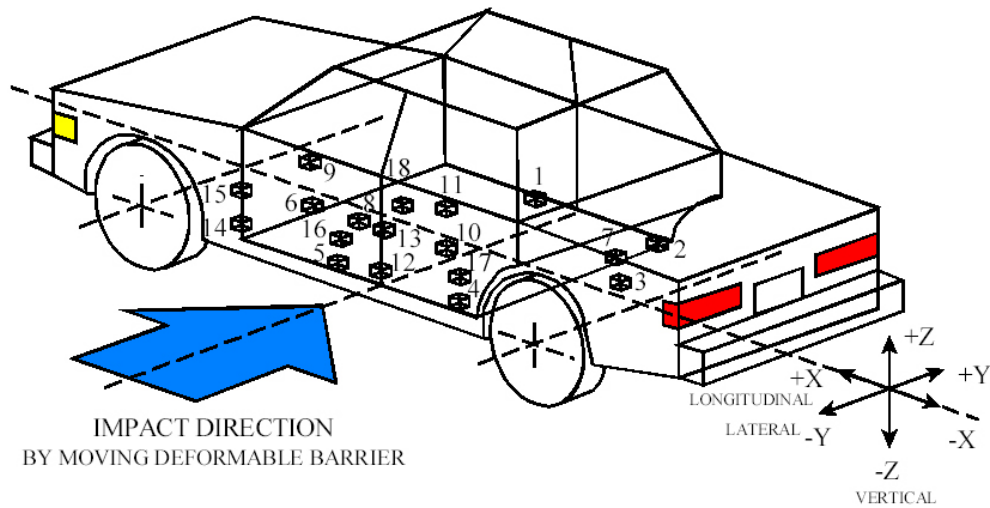


DEFORMABLE BARRIER FACE SUMMARY		
Barrier face manufacturer		Plascore
Serial number		A0709043
Level	Description	Maximum crush
1	Center of bumper	218
2	Top of bumper	117
3	Middle of stack	132
4	Top of stack	129
Maximum post test intrusion is 218 mm at level 1		

BARRIER STATIC CRUSH																	
	Distance left of center								C _L	Distance right of center							
	800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
4	84	58	38	41	51	79	109	67	59	62	66	76	79	84	94	104	129
3	55	39	36	42	56	75	80	74	33	32	28	28	33	45	56	73	132
2	113	101	95	88	79	72	79	74	79	89	93	96	99	100	102	105	117
1	218	194	173	169	163	164	160	156	162	154	150	162	159	161	163	170	171

all values in mm

DATA SHEET 13 VEHICLE ACCELEROMETER LOCATIONS



TEST VEHICLE ACCELEROMETER LOCATIONS				
Loc. no.	Accelerometer location	Measurements (mm)		
		X	Y	Z
1	Right sill at front seat	2746	734	310
2	Right sill at rear seat	1769	735	309
3	Rear floor pan above axle	1093	12	-65
4	Left sill at rear door	1772	-747	281
5	Left sill at front door	2754	-746	285
6	Left front door C/L	†	†	†
7	Rear occupant compartment	1931	351	285
8	Left front door mid-rear	†	†	†
9	Left front door upper C/L	†	†	†
10	Left rear door mid-rear	†	†	†
11	Left rear door upper C/L	†	†	†
12	Left lower b-pillar	2272	-823	-54
13	Left middle b-pillar	2228	-820	-316
14	Left lower a-pillar	3259	-805	-95
15	Left middle a-pillar	3263	-803	-260
16	Front seat track	2671	-597	122
17	Rear seat track or structure	1939	-289	130
18	Vehicle CG	2940	58	30

Origin

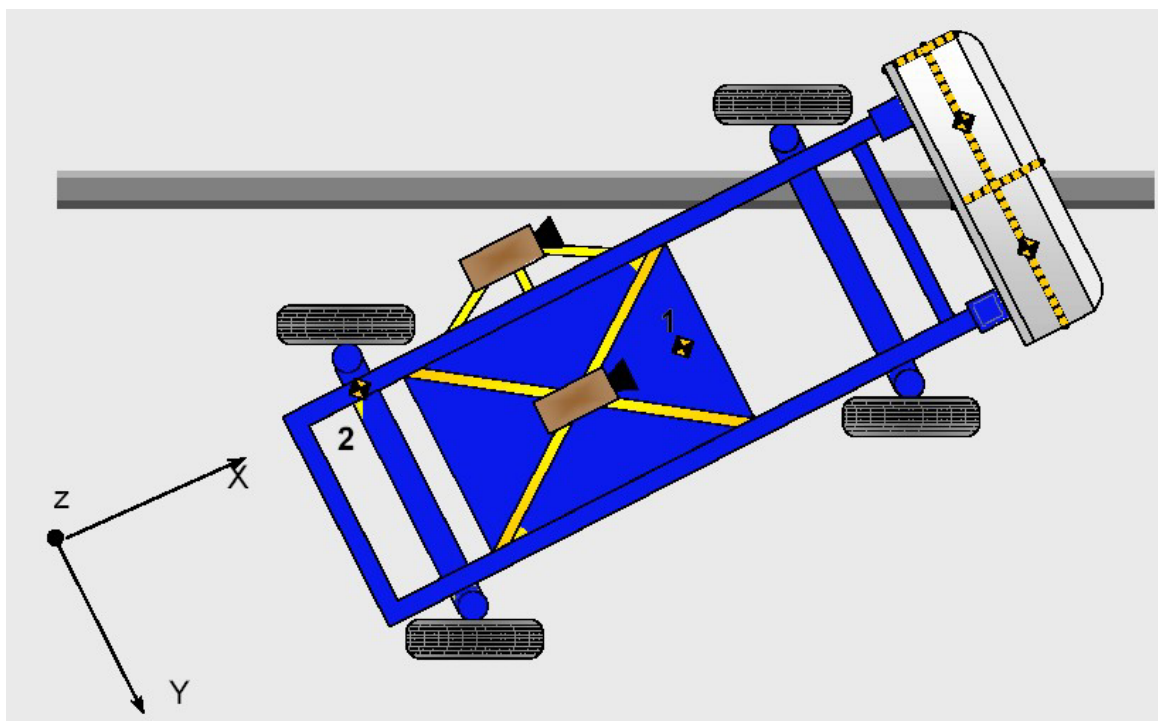
X Rear bumper
Y Midline of vehicle
Z Top of rear bumper

Orientation

X +(X) Forward
Y +(Y) Right
Z +(Z) Down

† Front and rear door accelerometers not installed as per NCAP policy (02Nov05)

DATA SHEET 14
MDB ACCELEROMETER LOCATIONS

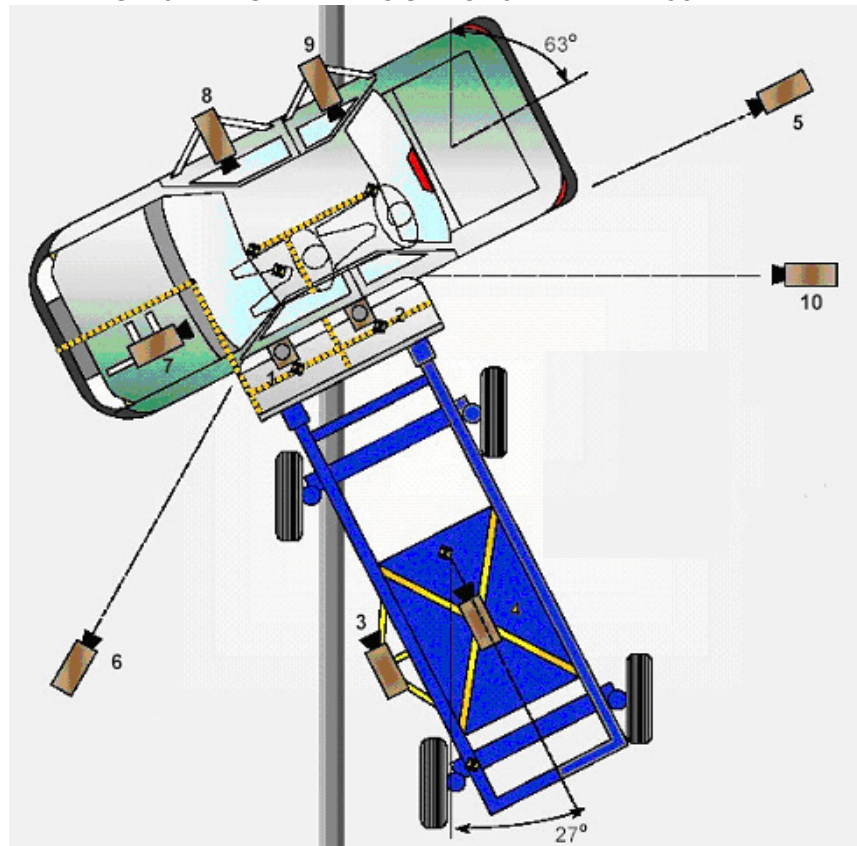


MDB ACCELEROMETER LOCATIONS			
Location	Measurements (mm)		
	X	Y	Z
Center of gravity	1113	-1	311
Right rear	2812	-614	585

Origin
 X Rear structural member
 Y Midline of MDB
 Z Middle of rear structural member

Orientation
 X +(X) Forward
 Y +(Y) Right
 Z +(Z) Down

DATA SHEET 15
HIGH-SPEED CAMERA LOCATIONS AND DATA SUMMARY



	View	Coordinates †			Angle °	Lens mm	Rate fps
		X	Y	Z			
		mm	mm	mm			
1	Overhead view of test vehicle	-420	1650	-4209	74.8	8	1000
2	Overhead close-up view of impact plane	-260	-510	-4662	90	12.5	1000
3	MDB onboard close-up view of impact point	-2060	1080	-234	0.6	35	1000
4	MDB onboard view of driver dummy	-1484	1736	-675	3.9	13	1000
5	Right side ground level overall view	2780	7664	-436	3.1	50	1000
6	Left side ground level overall view	-1848	-4512	-576	8.3	25	1000
7	Test vehicle onboard driver front view	218	-676	-342	12.4	25	1000
8	Test vehicle onboard driver side view	1740	185	-358	14.1	12.5	1000
9	Test vehicle onboard passenger side view	2172	627	-367	14.6	12.5	1000
10	Real-time film coverage of test	-	-	-	-	-	-

Origin

X

Y

Z

Impact Point

Impact Point

Impact Point

Orientation

X

Y

Z

+(X) Forward

+(Y) Right

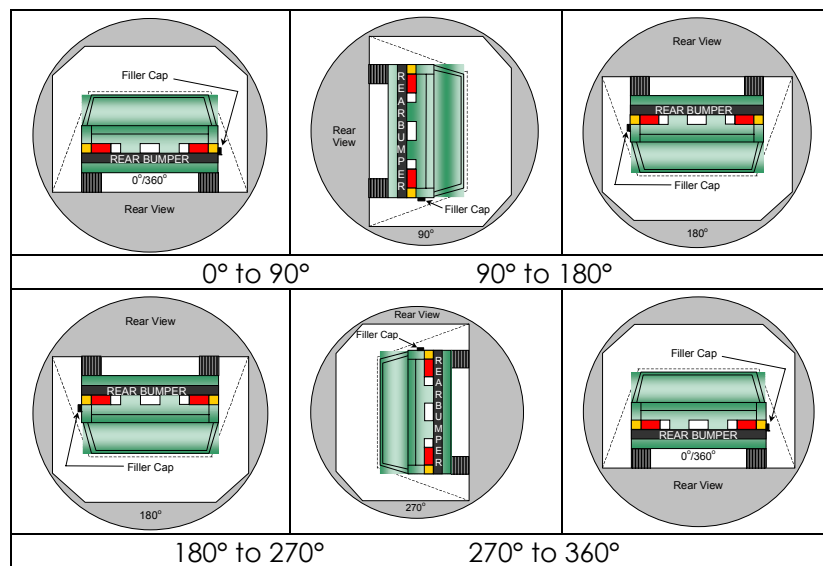
+(Z) Down

DATA SHEET 16
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 20° C Test Time: 1:15 pm

STODDARD SOLVENT SPILLAGE MEASUREMENTS				
Period	Description	Maximum allowable spillage	Spillage	
			Amount	Location
A	From impact until vehicle motion ceases	1 oz	0	N/a
B	5 minutes after vehicle motion ceases	5 oz	0	N/a
C	Next 25 minutes	1 oz/minute	0	N/a

FMVSS 301 STATIC ROLLOVER



FMVSS301 STATIC ROLLOVER DATA			
Test phase	Rotation time (sec.)	Hold time (sec.)	Total time (sec.)
Tolerance	60-180	>= 300	-
0° to 90°	63	300	363
90° to 180°	63	300	363
180° to 270°	65	300	365
270° to 360°	64	300	364

DATA SHEET 16
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA (CONTINUED)

FMVSS301 STATIC ROLLOVER - SPILLAGE				
	First five minutes (oz)	Sixth minute (oz)	Seventh minute (oz)	Eighth minute (oz)
Max allowable leakage	5.0	1.0	1.0	1.0
0° to 90°	0	0	0	N/a
90° to 180°	0	0	0	N/a
180° to 270°	0	0	0	N/a
270° to 360°	0	0	0	N/a

SPILLAGE LOCATION(s)	
0° to 90°	N/a
90° to 180°	N/a
180° to 270°	N/a
270° to 360°	N/a

APPENDIX A
PHOTOGRAPHS

LIST OF PHOTOGRAPHS

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A-4	Tire placard	A-5
A-5	Pre test front view of test vehicle	A-6
A-6	Post test front view of test vehicle	A-6
A-7	Pre test left front $\frac{3}{4}$ view of test vehicle	A-7
A-8	Post test left front $\frac{3}{4}$ view of test vehicle	A-7
A-9	Pre test left side view of test vehicle	A-8
A-10	Post test left side view of test vehicle	A-8
A-11	Pre test left rear $\frac{3}{4}$ view of test vehicle	A-9
A-12	Post test left rear $\frac{3}{4}$ view of test vehicle	A-9
A-13	Pre test rear view of test vehicle	A-10
A-14	Post test rear view of test vehicle	A-10
A-15	Pre test right rear $\frac{3}{4}$ view of test vehicle	A-11
A-16	Post test right rear $\frac{3}{4}$ view of test vehicle	A-11
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A-22	Post test overhead view	A-14
A-23	Pre test overhead close-up	A-15
A-24	Post test overhead close-up	A-15
A-25	Pre test impact point	A-16
A-26	Post test impact point	A-16
A-27	Pre test front $\frac{3}{4}$ view of left side doors	A-17
A-28	Post test front $\frac{3}{4}$ view of left side doors	A-17
A-29	Pre test rear $\frac{3}{4}$ view of left side doors	A-18
A-30	Post test rear $\frac{3}{4}$ view of left side doors	A-18
A-31	Pre test left front door	A-19
A-32	Post test left front door	A-19
A-33	Pre test left rear door	A-20
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A-35	Pre test driver, left side view	A-21
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A-38	Post test driver shoulder clearance	A-22
A-39	Pre test driver, right side view	A-23
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A-43	Pre test passenger, left side view	A-25
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Figure	Photograph Description	Page
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A-52	Post test front view of MDB barrier face	A-29
A-53	Pre test overhead view of MDB barrier face	A-30
A-54	Post test overhead view of MDB barrier face	A-30
A-55	Pre test right side view of MDB barrier face	A-31
A-56	Post test right side view of MDB barrier face	A-31
A-57	Pre test left side view of MDB barrier face	A-32
A-58	Post test left side view of MDB barrier face	A-32
A-59	FMVSS301 0 degrees	A-33
A-60	FMVSS301 90 degrees	A-33
A-61	FMVSS301 180 degrees	A-34
A-62	FMVSS301 270 degrees	A-34
A-63	FMVSS301 360 degrees	A-35
A-64	Impact	A-35



Figure A-1: Left front 3/4 view, as delivered



Figure A-2: Right rear 3/4 view, as delivered

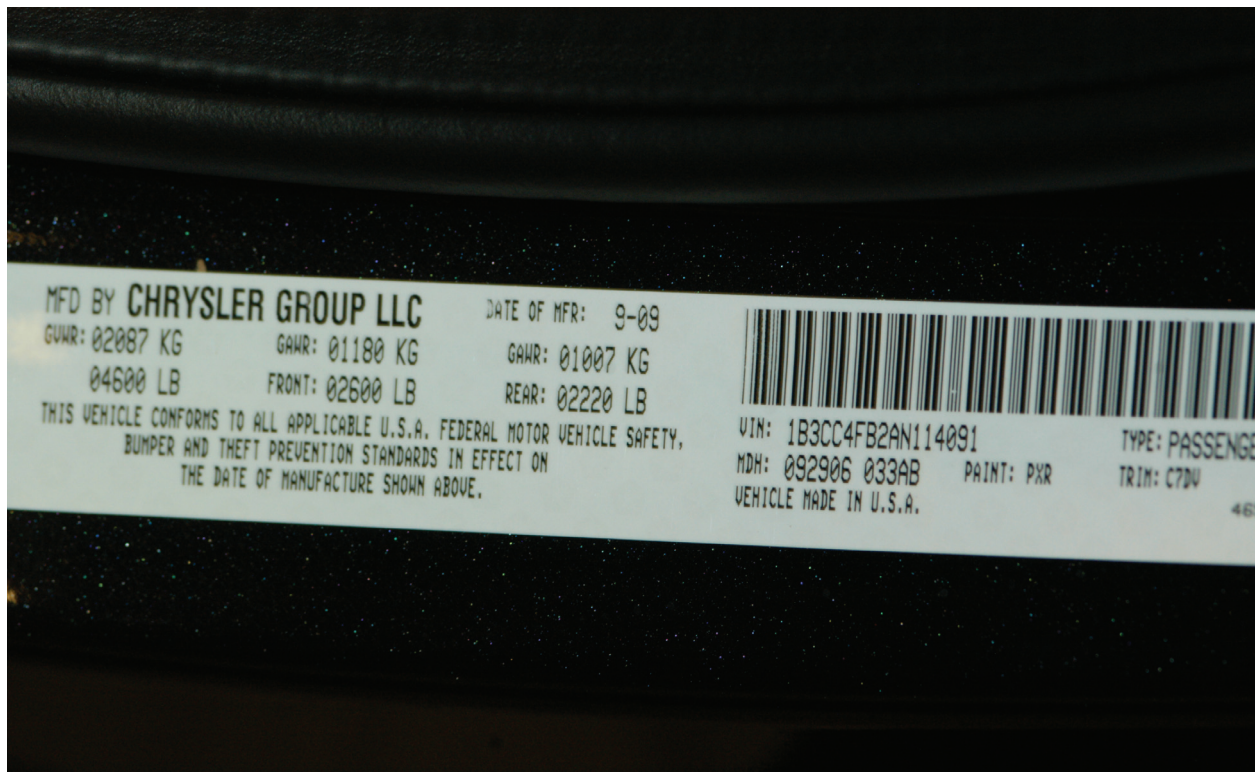


Figure A-3: Manufacturer's label

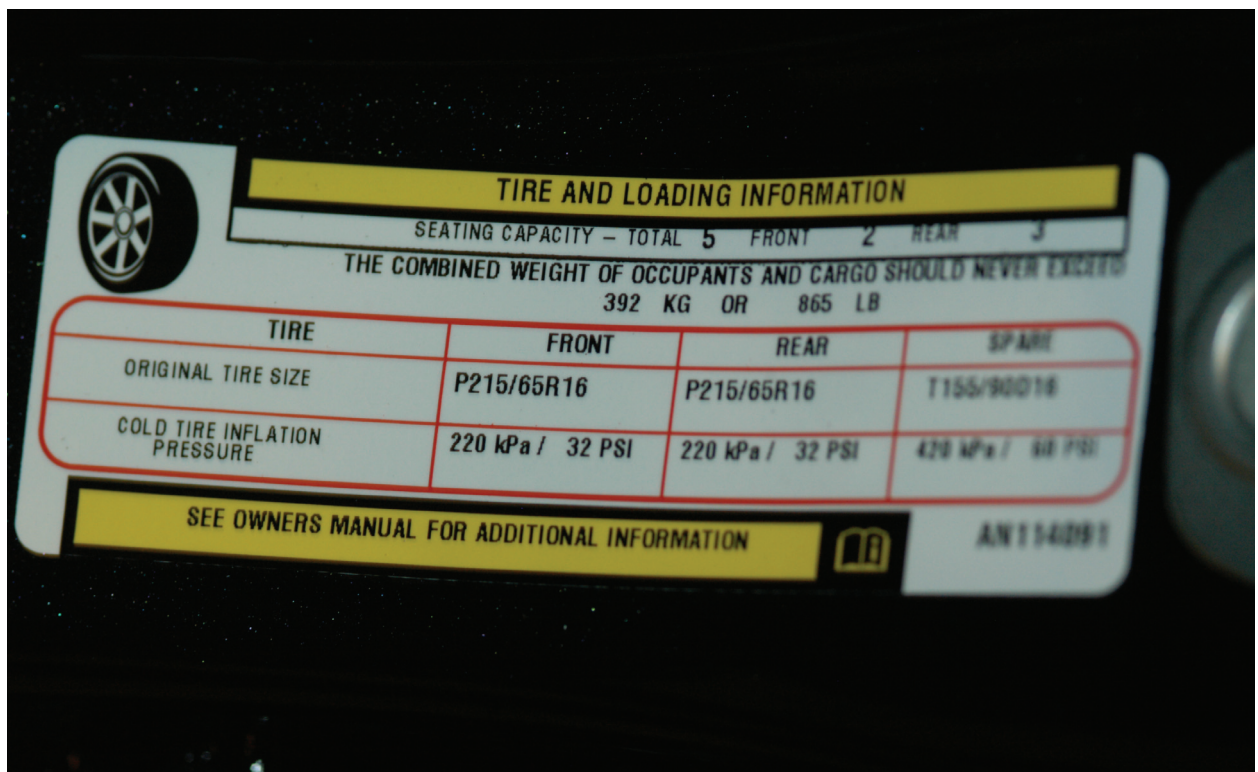


Figure A-4: Tire placard



Figure A-5: Pre test front view of test vehicle



Figure A-6: Post test front view of test vehicle



Figure A-7: Pre test left front 3/4 view of test vehicle



Figure A-8: Post test left front 3/4 view of test vehicle



Figure A-9: Pre test left side view of test vehicle



Figure A-10: Post test left side view of test vehicle



Figure A-11: Pre test left rear 3/4 view of test vehicle

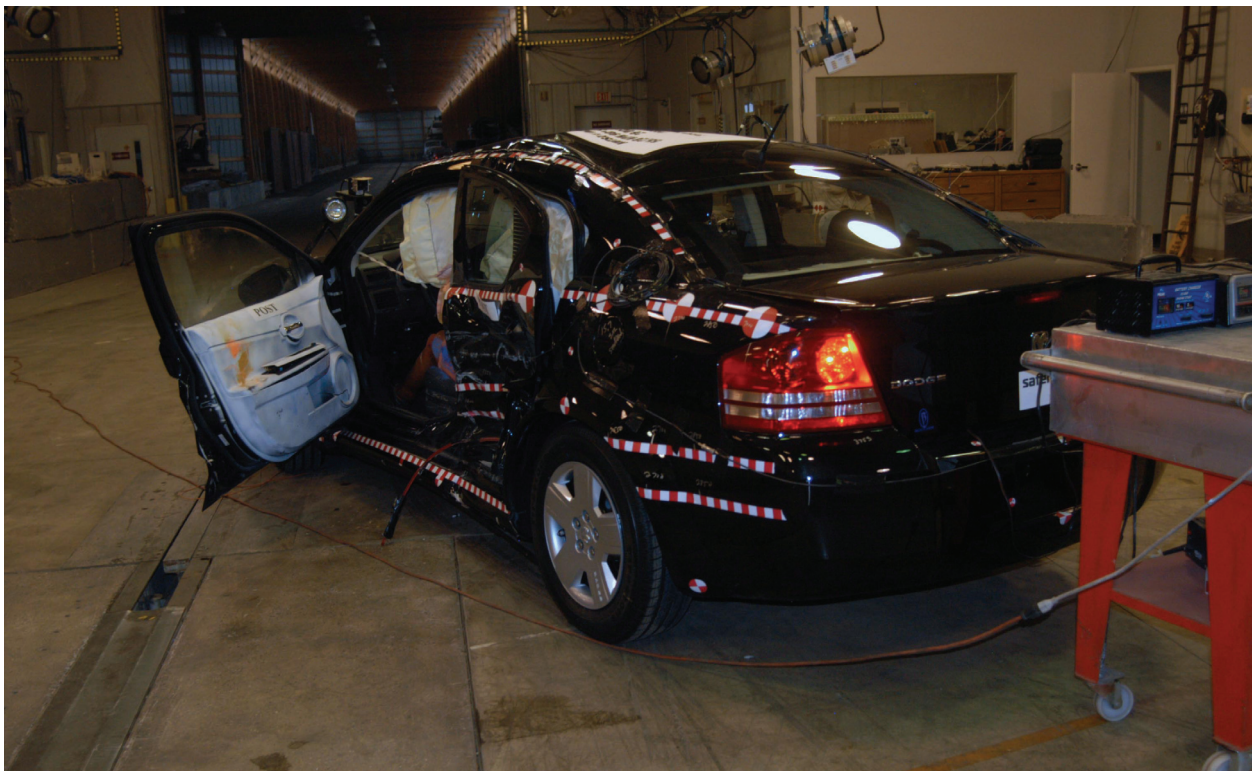


Figure A-12: Post test left rear 3/4 view of test vehicle



Figure A-13: Pre test rear view of test vehicle



Figure A-14: Post test rear view of test vehicle



Figure A-15: Pre test right rear 3/4 view of test vehicle



Figure A-16: Post test right rear 3/4 view of test vehicle



Figure A-17: Pre test right side view of test vehicle



Figure A-18: Post test right side view of test vehicle



Figure A-19: Pre test right front 3/4 view of test vehicle



Figure A-20: Post test right front 3/4 view of test vehicle



Figure A-21: Pre test overhead view

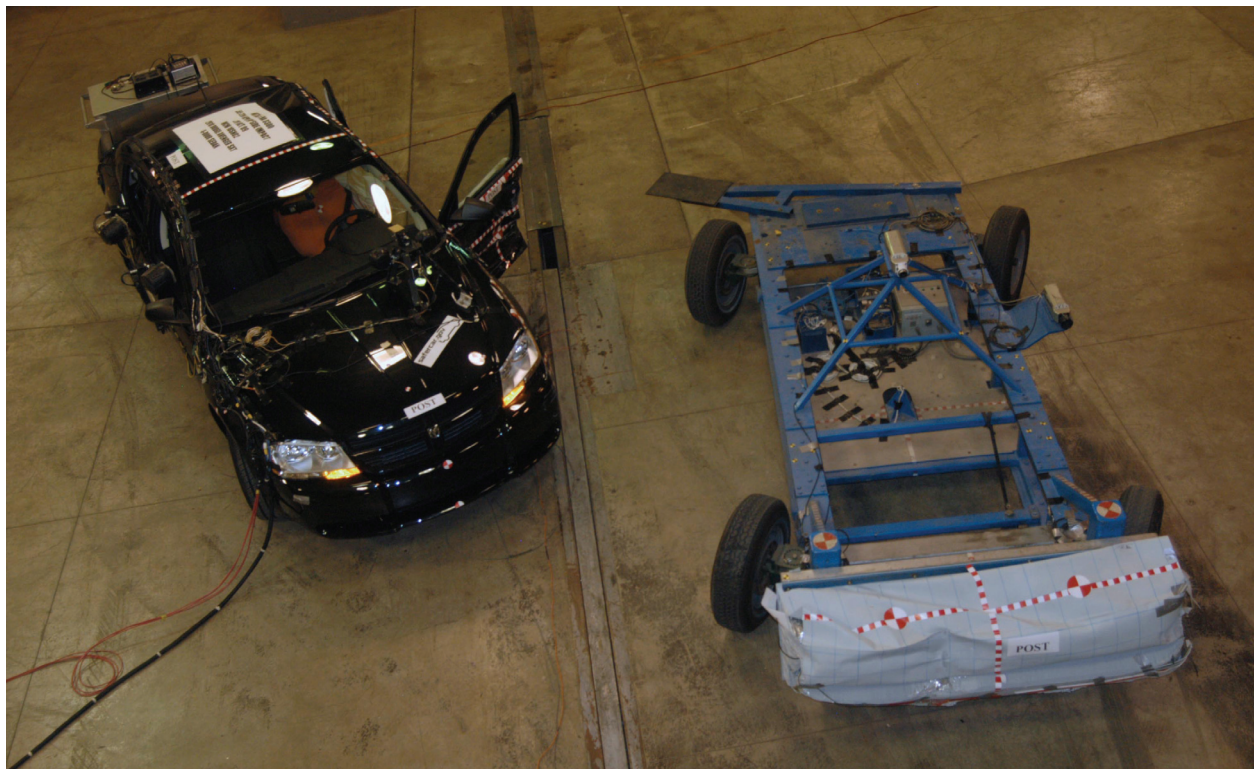


Figure A-22: Post test overhead view

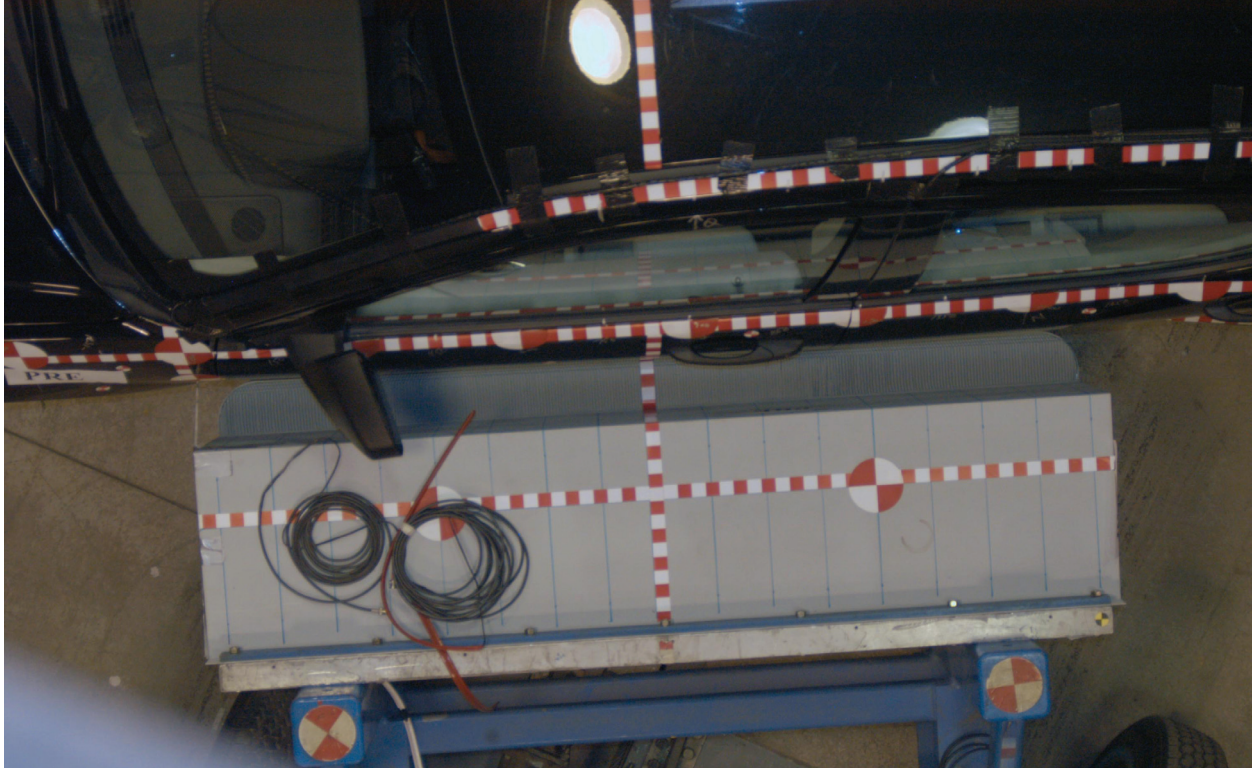


Figure A-23: Pre test overhead close-up view



Figure A-24: Post test overhead close-up view



Figure A-25: Pre test impact point



Figure A-26: Post test impact point



Figure A-27: Pre test front 3/4 view of left side doors



Figure A-28: Post test front 3/4 view of left side doors



Figure A-29: Pre test rear 3/4 view of left side doors



Figure A-30: Post test rear 3/4 view of left side doors



Figure A-31: Pre test left front door



Figure A-32: Post test left front door



Figure A-33: Pre test left rear door



Figure A-34: Post test left rear door



Figure A-35: Pre test driver left side view



Figure A-36: Post test driver left side view



Figure A-37: Pre test driver shoulder clearance



Figure A-38: Post test driver shoulder clearance



Figure A-39: Pre test driver right side view



Figure A-40: Post test driver right side view



Figure A-41: Post test driver contact locations (1)



Figure A-42: Post test driver contact locations (2)



Figure A-43: Pre test passenger left side view



Figure A-44: Post test passenger left side view



Figure A-45: Pre test passenger shoulder clearance



Figure A-46 Post test passenger shoulder clearance



Figure A-47: Pre test passenger right side view



Figure A-48: Post test passenger right side view



Figure A-49: Post test passenger contact locations (1)



Figure A-50: Post test passenger contact locations (2)

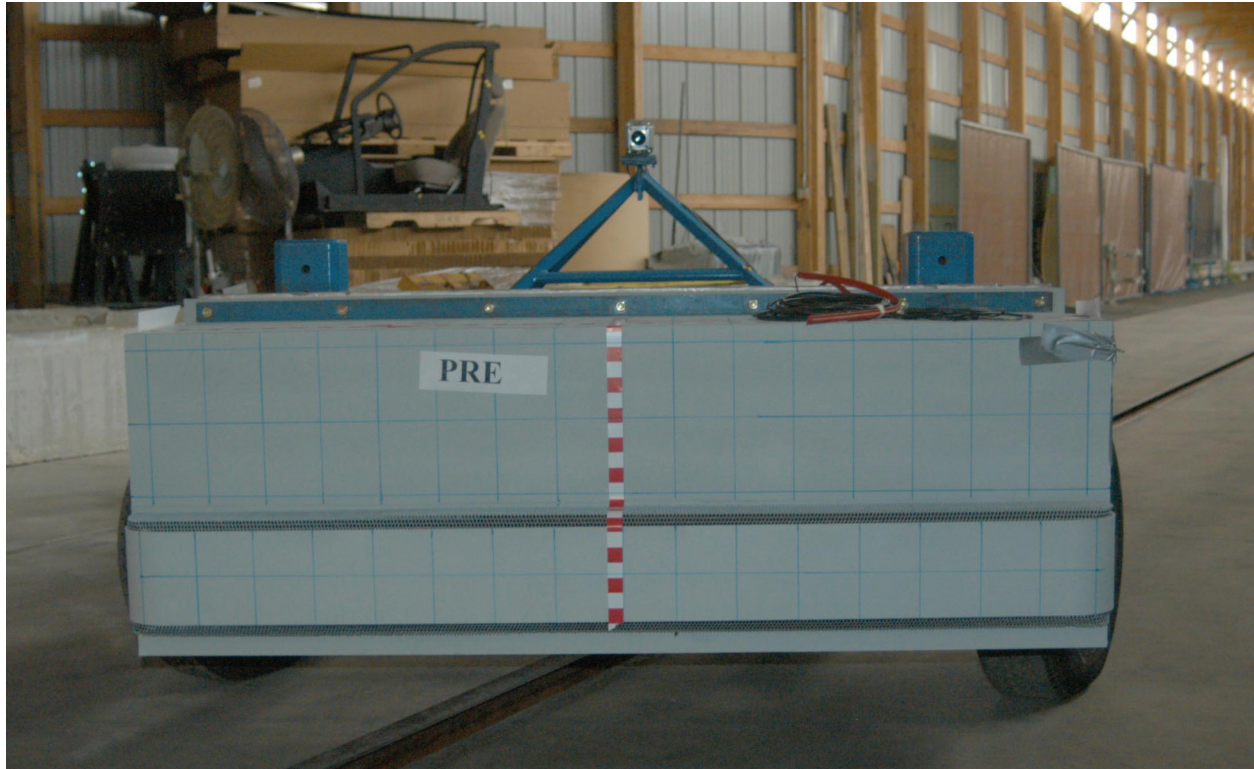


Figure A-51: Pre test front view of MDB barrier face



Figure A-52: Post test front view of MDB barrier face

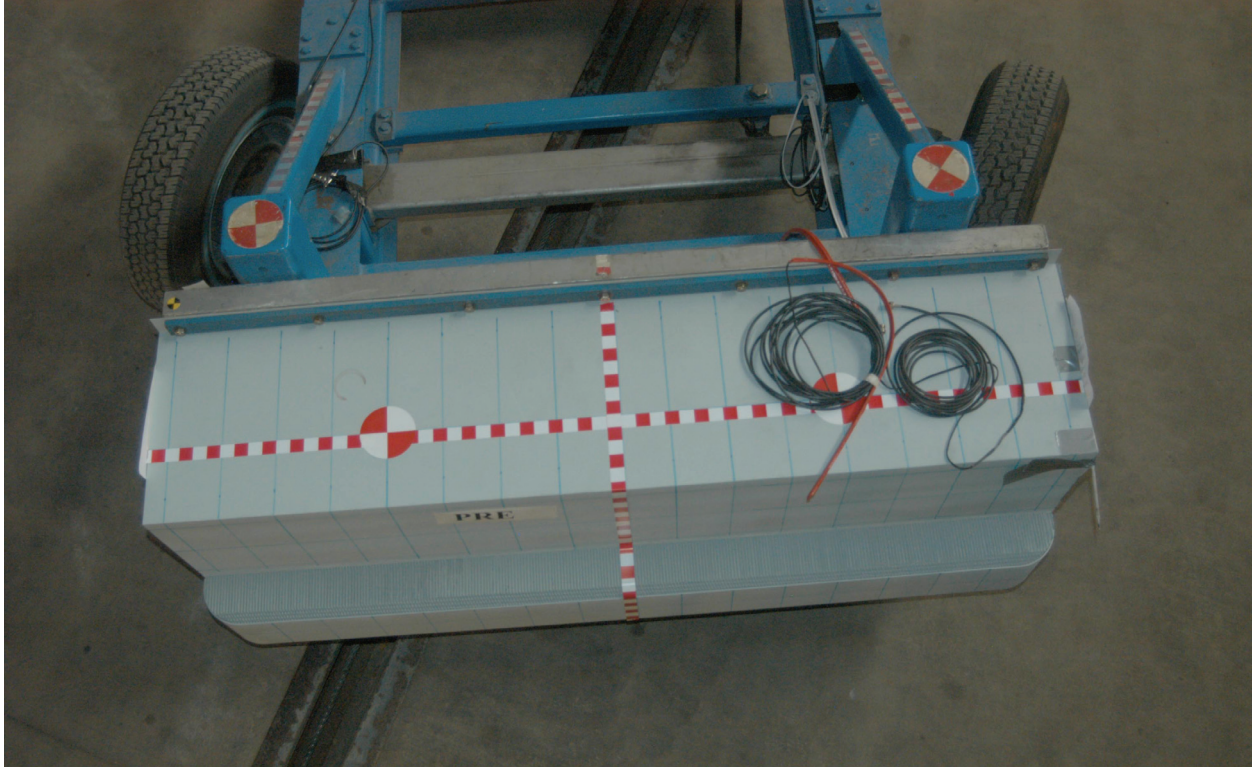


Figure A-53: Pre test overhead view of MDB barrier face



Figure A-54: Post test overhead view of MDB barrier face



Figure A-55: Pre test right side view of MDB barrier face



Figure A-56: Post test right side view of MDB barrier face



Figure A-57: Pre test left side view of MDB barrier face



Figure A-58: Post test left side view of MDB barrier face



Figure A-59: FMVSS 301 0 degrees

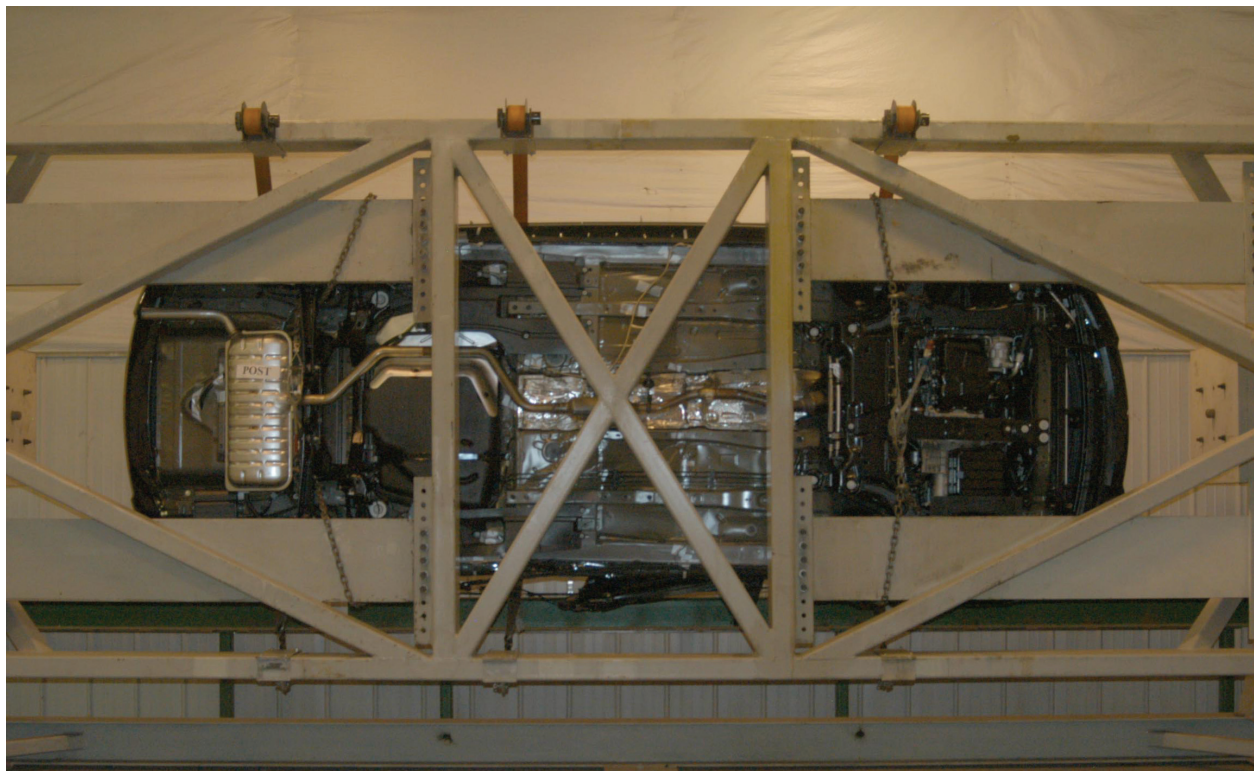


Figure A-60: FMVSS 301 90 degrees

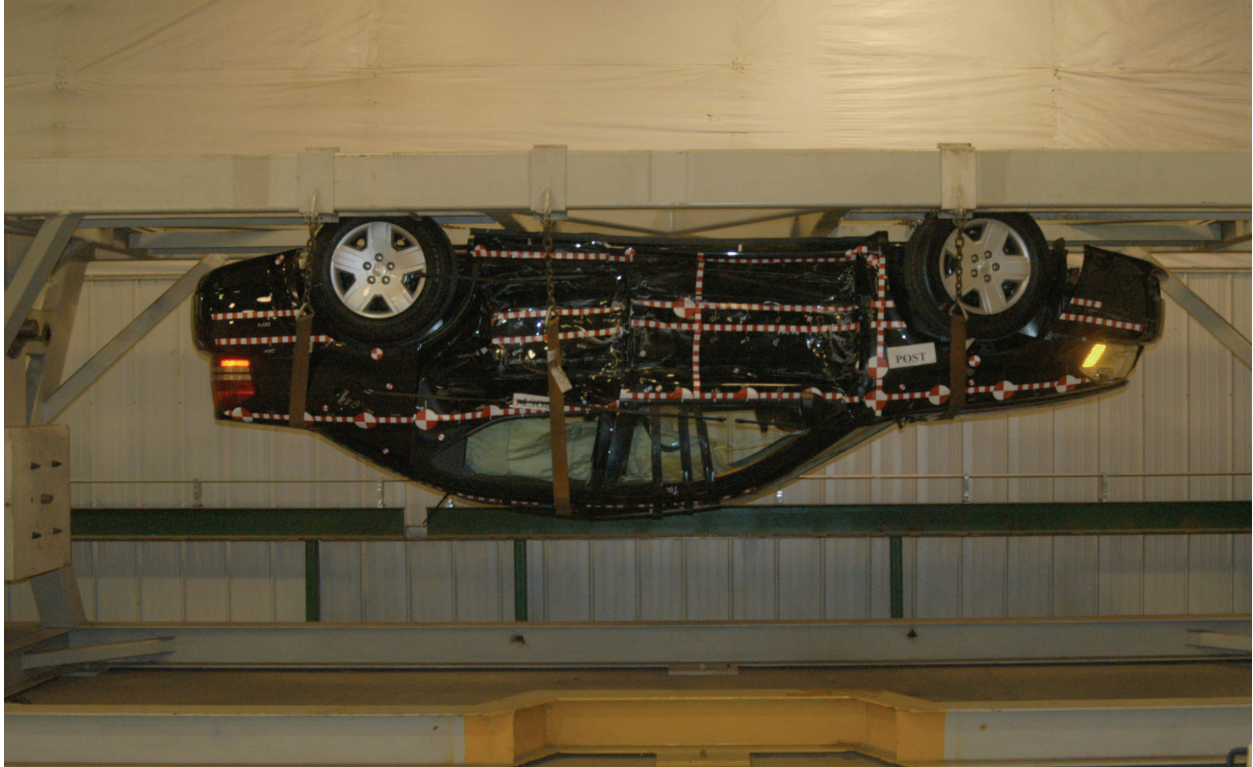


Figure A-61: FMVSS 301 180 degrees

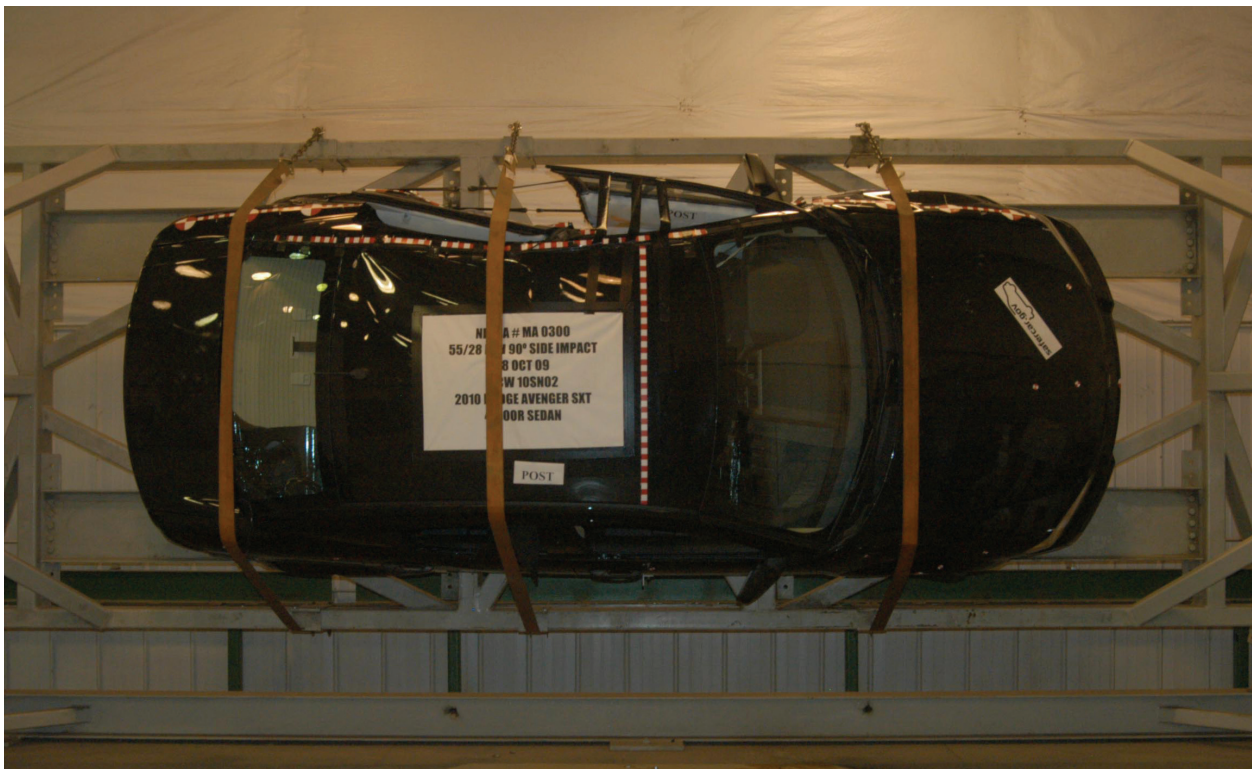


Figure A-62: FMVSS 301 270 degrees



Figure A-63: FMVSS 301 360 degrees



Figure A-64: Impact

APPENDIX B

SID/HIII, VEHICLE AND MDB RESPONSE DATA

The following plots are provided in the test report

Data Plot	Description	Page
B-1	Driver upper rib acceleration (P) – FIR100	B-4
B-2	Driver lower rib acceleration (P) – FIR100	B-5
B-3	Driver lower spine acceleration (P) – FIR100	B-6
B-4	Driver pelvis acceleration (P) – FIR100	B-7
B-5	Passenger upper rib acceleration (P) – FIR100	B-8
B-6	Passenger lower rib acceleration (P) – FIR100	B-9
B-7	Passenger lower spine acceleration (P) – FIR100	B-10
B-8	Passenger pelvis acceleration (P) – FIR100	B-11

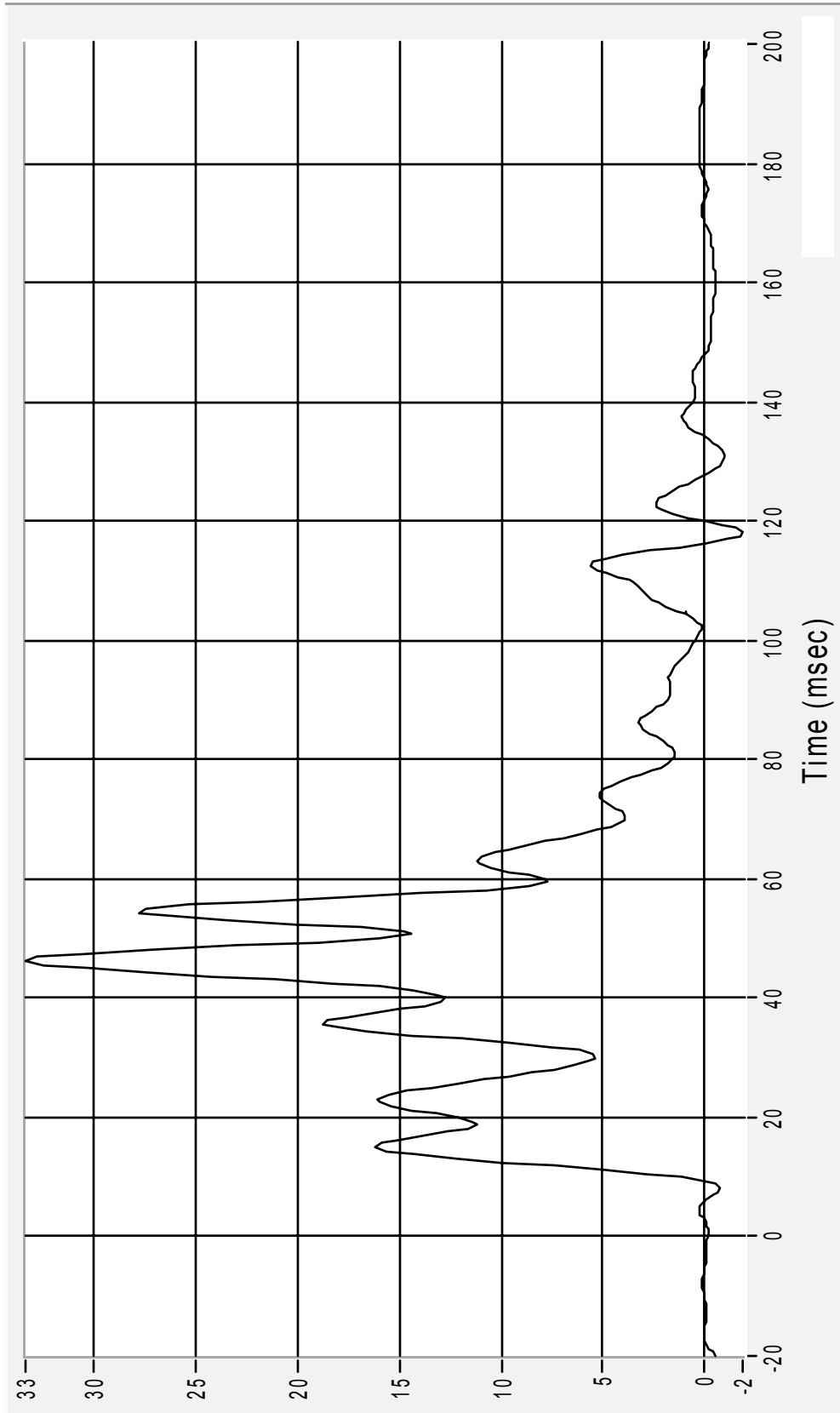
The following dummy, vehicle, and MDB response data can be found in the R&D section of the NHTSA website at: www-nrd.nhtsa.dot.gov/database/nrd-11/veh_db.html.

Description
Driver head (x) acceleration
Driver head (y) acceleration
Driver head (z) acceleration
Driver upper neck (x) force
Driver upper neck (y) force
Driver upper neck (z) force
Driver upper neck (x) moment
Driver upper neck (y) moment
Driver upper neck (z) moment
Driver upper rib (y) acceleration – redundant
Driver lower rib (y) acceleration – redundant
Driver lower spine (y) acceleration – redundant
Driver pelvis (y) acceleration – redundant
Passenger head (x) acceleration
Passenger head (y) acceleration
Passenger head (z) acceleration
Passenger upper neck (x) force
Passenger upper neck (y) force
Passenger upper neck (z) force
Passenger upper neck (x) moment
Passenger upper neck (y) moment
Passenger upper neck (z) moment
Passenger upper rib (y) acceleration – redundant
Passenger lower rib (y) acceleration – redundant
Passenger lower spine (y) acceleration – redundant
Passenger pelvis (y) acceleration – redundant
Vehicle right side sill at front seat (x) acceleration
Vehicle right side sill at front seat (y) acceleration
Vehicle right side sill at front seat (z) acceleration
Vehicle right side sill at rear seat (x) acceleration
Vehicle right side sill at rear seat (y) acceleration
Vehicle right side sill at rear seat (z) acceleration
Vehicle rear floor pan above axle (x) acceleration
Vehicle rear floor pan above axle (y) acceleration
Vehicle rear floor pan above axle (z) acceleration
Vehicle left side sill at rear seat (y) acceleration
Vehicle left side sill at front seat (y) acceleration
Vehicle right rear occupant compartment (y) acceleration

Vehicle left lower b-pillar (y) acceleration
Vehicle left middle b-pillar (y) acceleration
Vehicle left lower a-pillar (y) acceleration
Vehicle left middle a-pillar (y) acceleration
Vehicle front seat track (y) acceleration
Vehicle rear seat track/structure (y) acceleration
Vehicle center of gravity (x) acceleration
Vehicle center of gravity (y) acceleration
Vehicle center of gravity (z) acceleration
MDB center of gravity (x) acceleration
MDB center of gravity (y) acceleration
MDB center of gravity (z) acceleration
MDB rear (x) acceleration
MDB rear (y) acceleration

Driver Upper Rib (Y) Acceleration
 Acceleration (G's) FIR100

Max	33.3	G	at	46.2	msec
Min	-1.9	G	at	118.1	msec



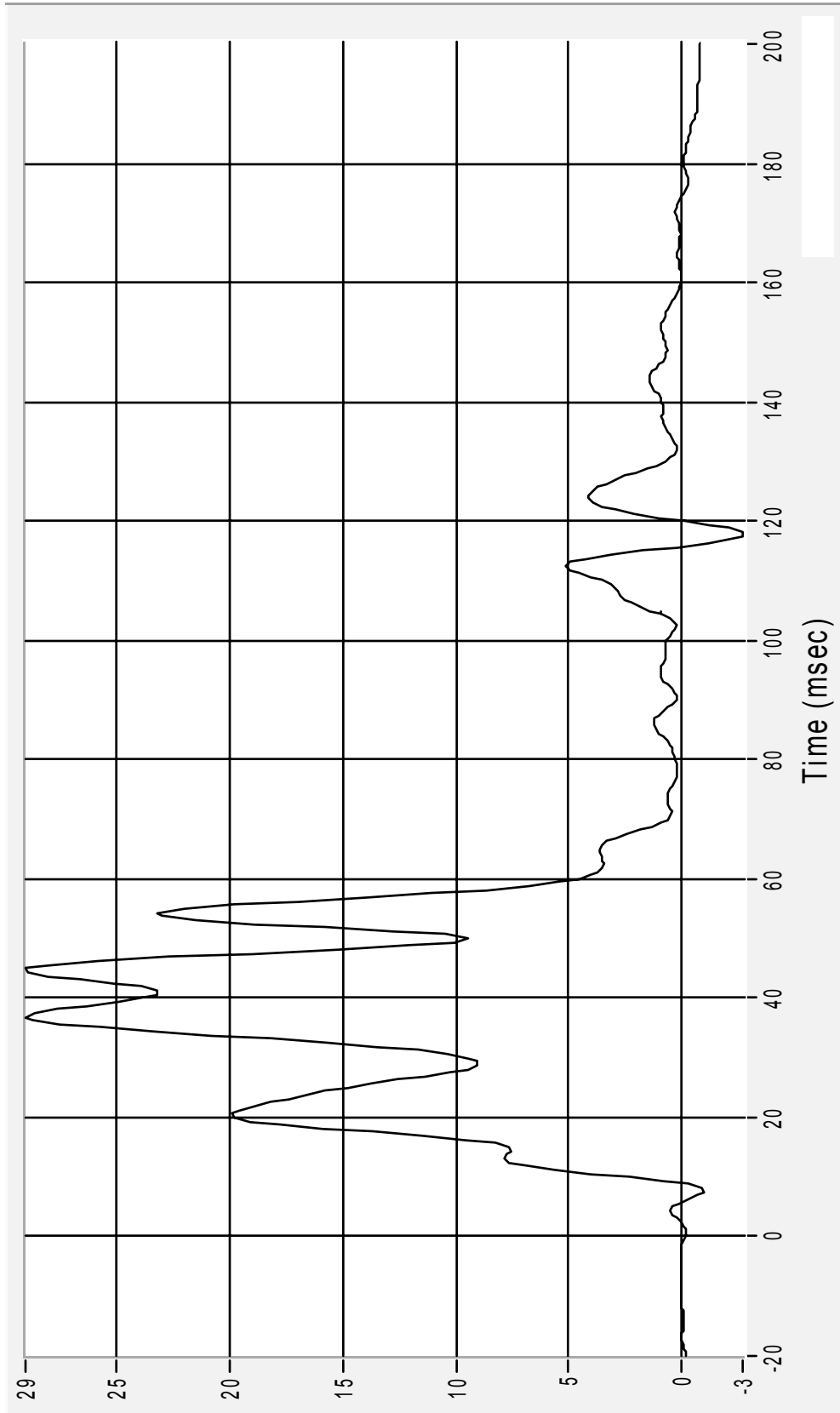
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Driver Lower Rib (Y) Acceleration
 Acceleration (G's) FIR100

Max	29.0	G	at	36.9	msec
Min	-2.7	G	at	117.5	msec

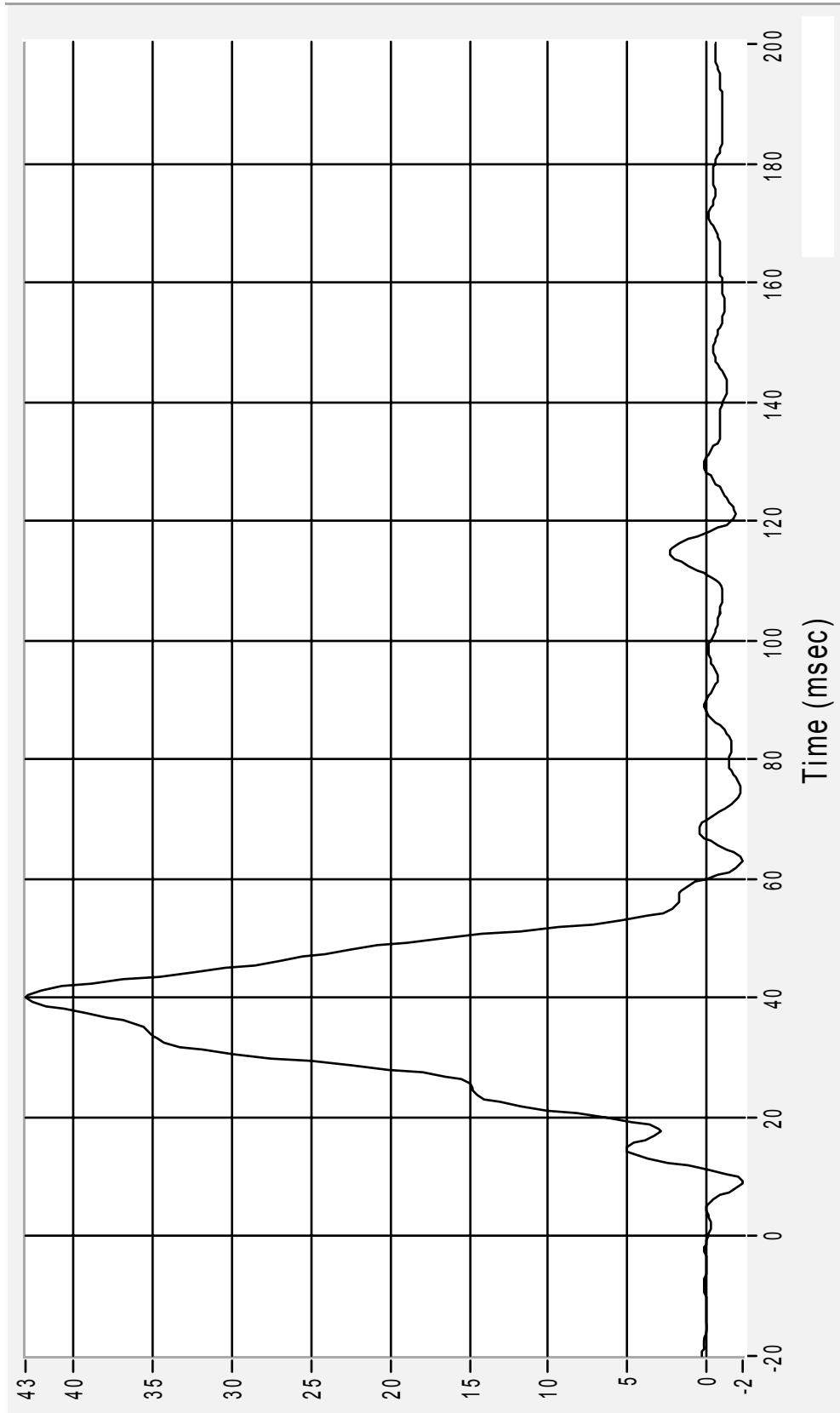


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Driver Lower Spine (Y) Acceleration
 Acceleration (G's) FIR100

Max	43.1	G	at	40.0	msec
Min	-2.3	G	at	9.4	msec

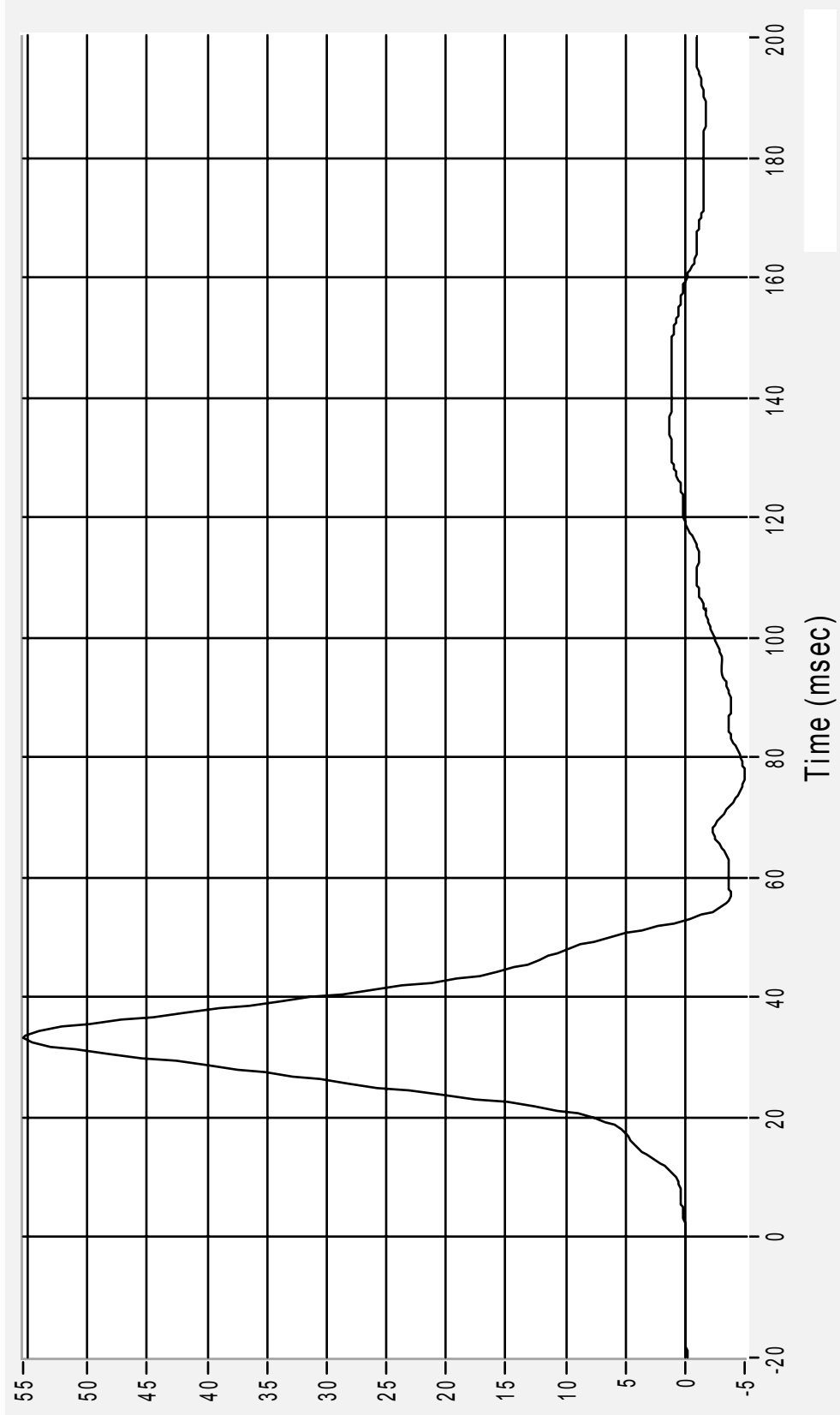


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Driver Pelvic (Y) Acceleration
 Acceleration (G's) FIR100

Max	55.4	G	at	33.1	msec
Min	-5.0	G	at	76.9	msec

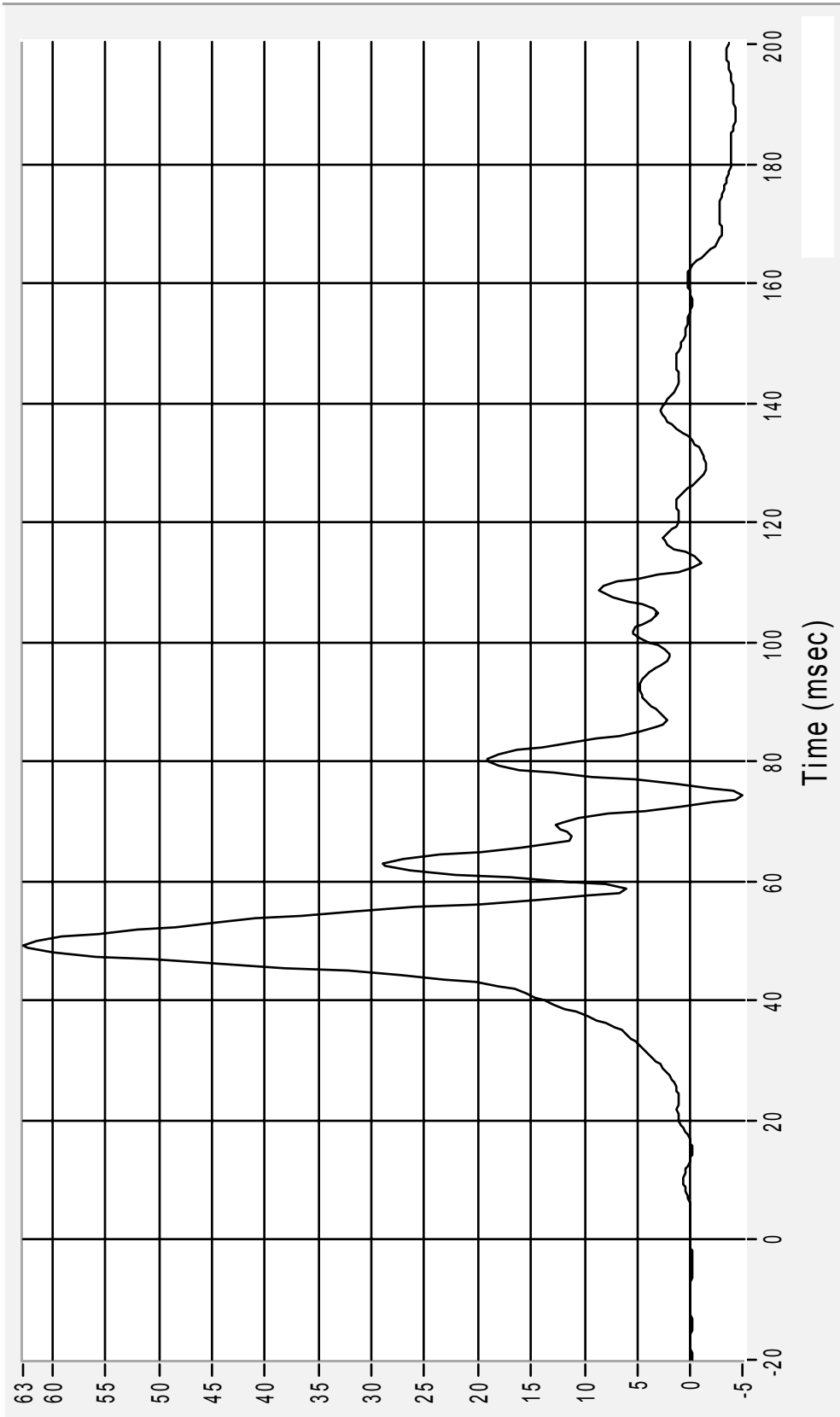


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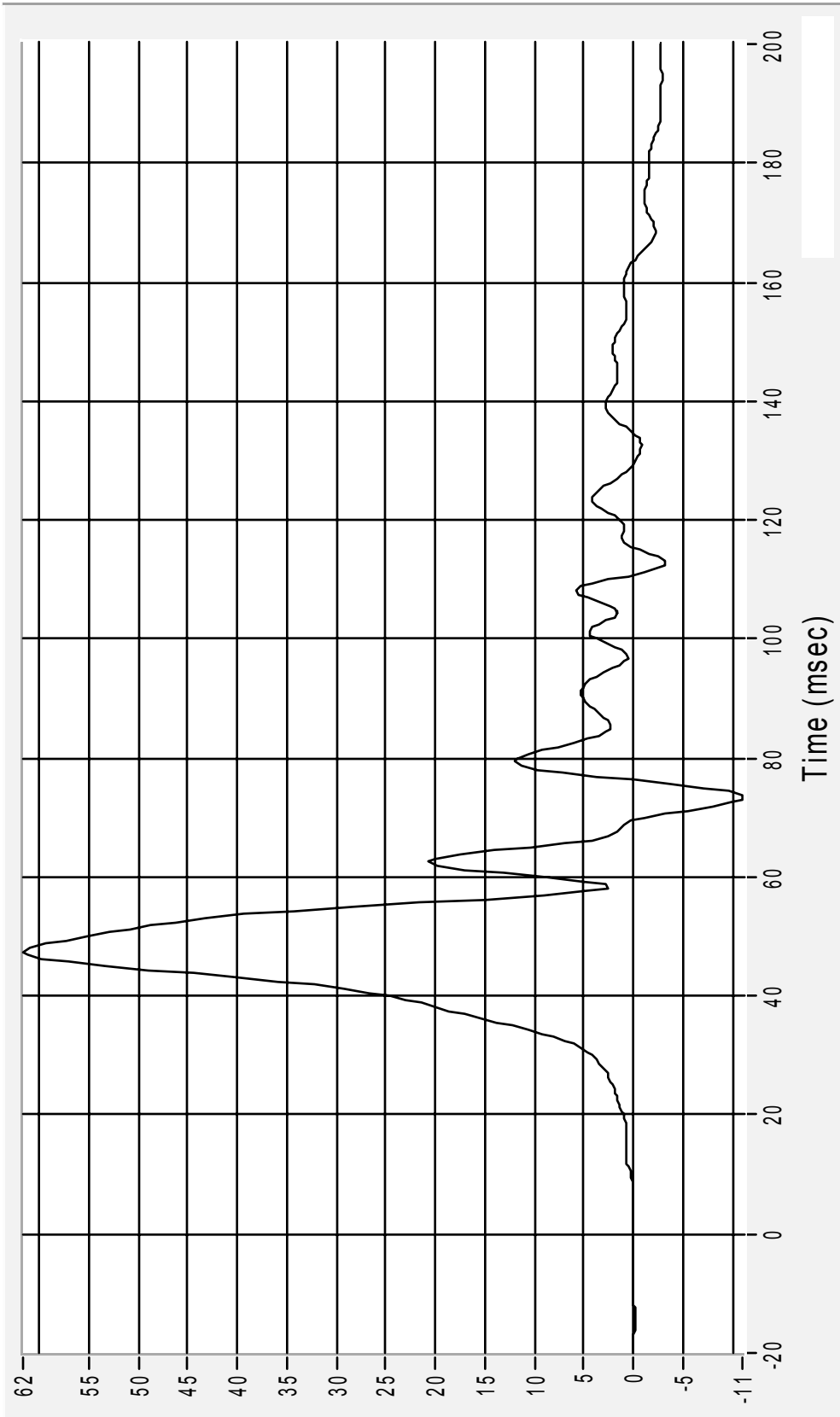
Passenger Upper Rib (Y) Acceleration
 Acceleration (G's) FIR100 Max 62.7 G at 49.4 msec
 Min -4.8 G at 74.4 msec



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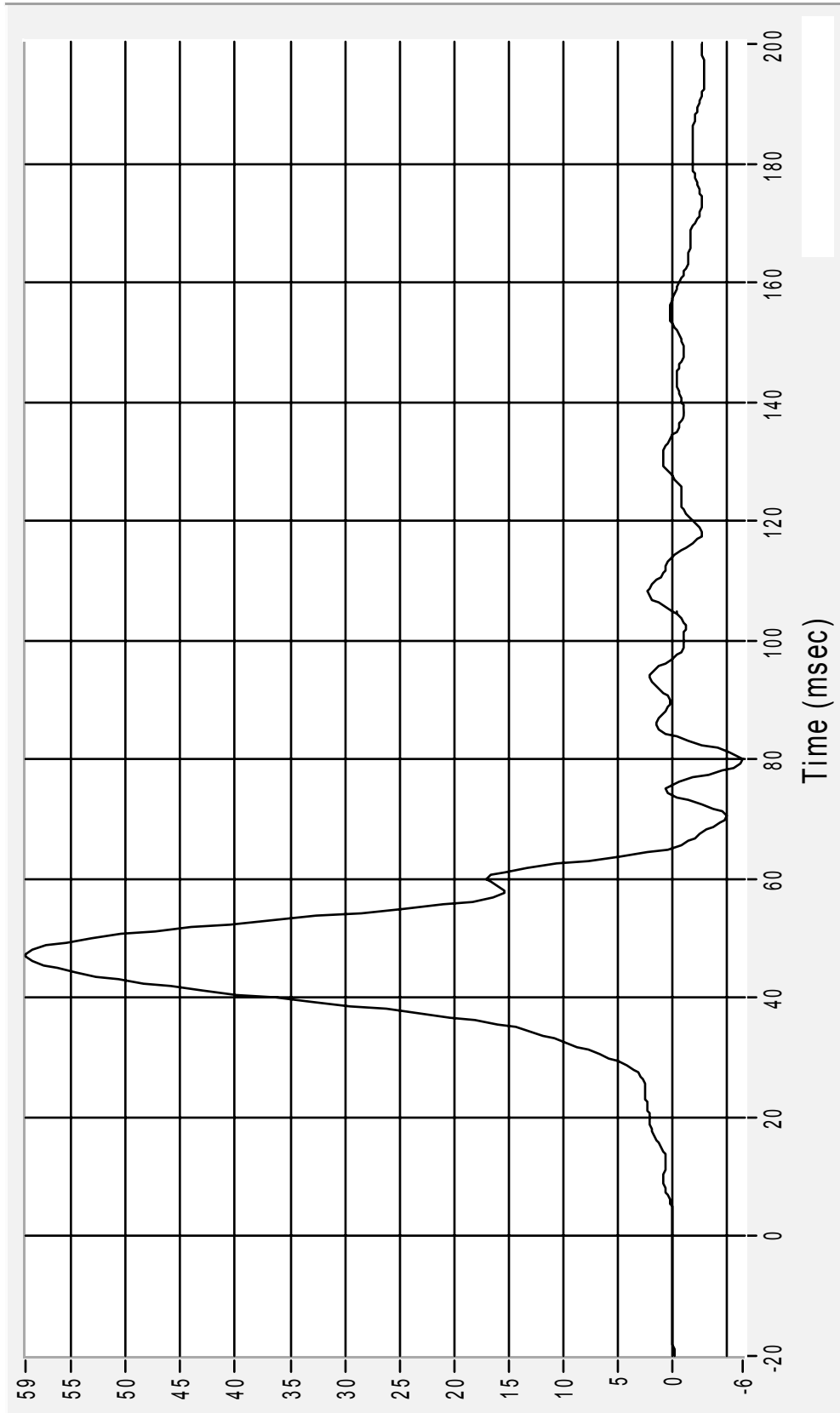
Passenger Lower Rib (Y) Acceleration
 Acceleration (G's) FIR100 Max 61.6 G at 47.5 msec
 Min -11.0 G at 73.1 msec



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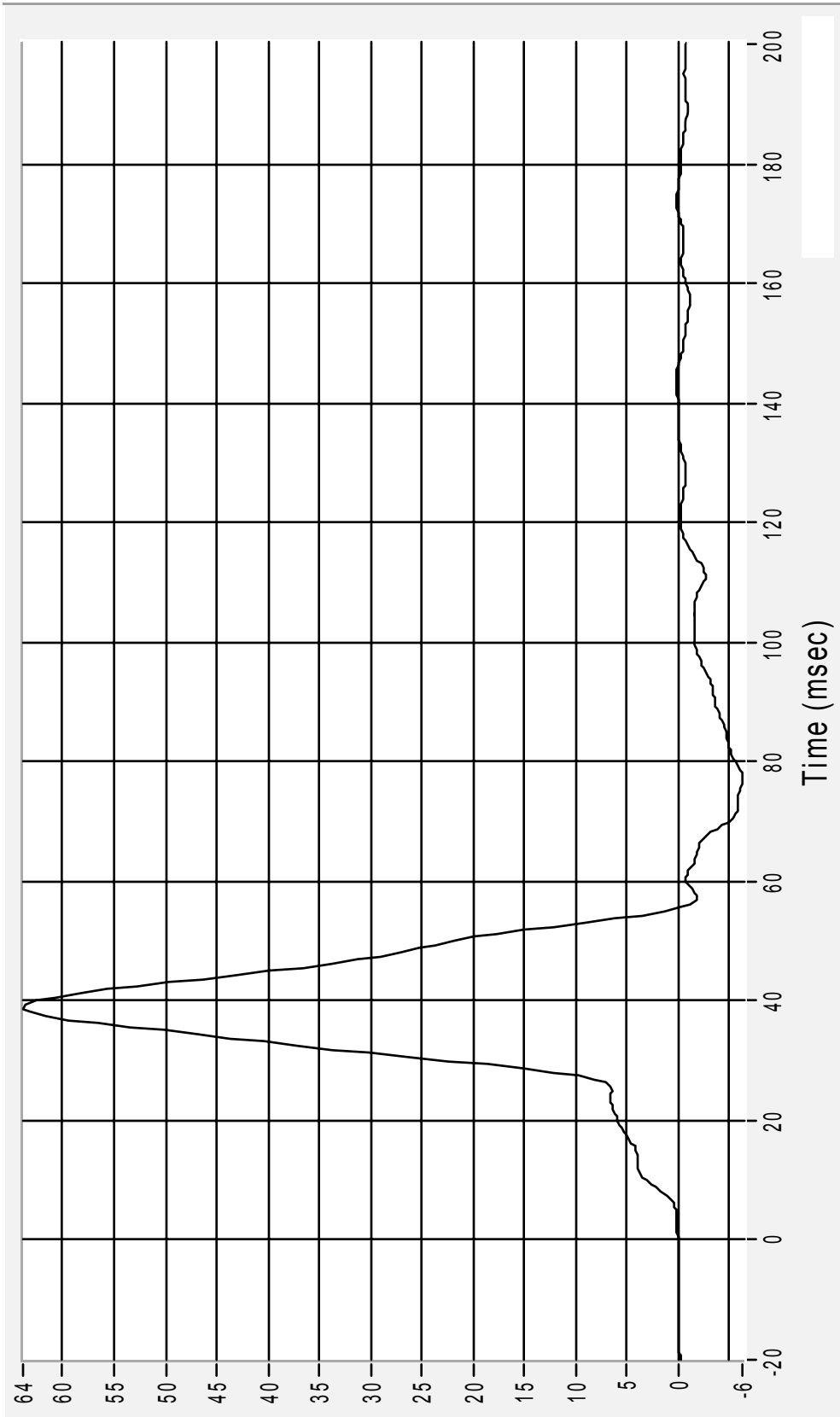
Passenger Lower Spine (Y) Acceleration
 Acceleration (G's) FIR100 Max 59.2 G at 47.5 msec
 Min -6.5 G at 80.0 msec



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Passenger Pelvic (Y) Acceleration
 Acceleration (G's) FIR100 Max 63.9 G at 38.8 msec
 Min -6.3 G at 77.5 msec



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 28 October 2009

APPENDIX C
DUMMY CALIBRATION DATA

**VERIFICATION TEST RESULTS SUMMARY
PRE AND POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial Number 058Test Sequences 1 and 2

TEST	PRE		POST	
	COMMENTS	BY	COMMENTS	BY
EXTERNAL DIMENSIONS	Pass all requirements	Mike Rawski	Pass all requirements	Mike Rawski
THORACIC SHOCK ABSORBER TEST	Pass all requirements	Mike Rawski	Pass all requirements	Mike Rawski
LATERAL THORAX IMPACT TEST	Pass all requirements	Mike Rawski	Pass all requirements	Mike Rawski
LATERAL PELVIS IMPACT TEST	Pass all requirements	Mike Rawski	Pass all requirements	Mike Rawski
ABDOMINAL COMPRESSION	Pass all requirements	Mike Rawski	Pass all requirements	Mike Rawski
LUMBAR FLEXION	Pass all requirements	Mike Rawski	Pass all requirements	Mike Rawski
HYBRID III LATERAL NECK TEST	Pass all requirements	Mike Rawski	Pass all requirements	Mike Rawski
HYBRID III LATERAL HEAD DROP	Pass all requirements	Mike Rawski	Pass all requirements	Mike Rawski

SID Serial Number 137Test Sequences 1 and 2

TEST	PRE		POST	
	COMMENTS	BY	COMMENTS	BY
EXTERNAL DIMENSIONS	Pass all requirements	Mike Rawski	Pass all requirements	Mike Rawski
THORACIC SHOCK ABSORBER TEST	Pass all requirements	Mike Rawski	Pass all requirements	Mike Rawski
LATERAL THORAX IMPACT TEST	Pass all requirements	Mike Rawski	Pass all requirements	Mike Rawski
LATERAL PELVIS IMPACT TEST	Pass all requirements	Mike Rawski	Pass all requirements	Mike Rawski
ABDOMINAL COMPRESSION	Pass all requirements	Mike Rawski	Pass all requirements	Mike Rawski
LUMBAR FLEXION	Pass all requirements	Mike Rawski	Pass all requirements	Mike Rawski
HYBRID III LATERAL NECK TEST	Pass all requirements	Mike Rawski	Pass all requirements	Mike Rawski
HYBRID III LATERAL HEAD DROP	Pass all requirements	Mike Rawski	Pass all requirements	Mike Rawski

SUMMARY
SID H3 PRE AND POST VERIFICATION
CONFIGURED FOR LEFT SIDE IMPACT

TEST PARAMETER	SPEC	SID HIII/058		SID HIII/137	
		PRE	POST	PRE	POST
MEASUREMENTS					
Date	-	20Aug09	02Nov09	21Sept09	09Nov09
Sequential Test Number	-	1	2	1	2
Temperature (°C)	18.9-25.5	21.6	20.7	20.2	22.5
Relative Humidity (%)	10-70	55.9	33.0	52.7	31.7
SH – Seated Height (mm)	889-909	909	908	909	909
RH – Rib Height (mm)	501-521	520	518	517	519
HP – Hip Pivot Height (mm)	99	99/99	99/99	99/99	99/99
RD – Rib From Back Line (mm)	229-241	229	231	237	238
KH – Knee Pivot from Back Line (mm)	511-526	520/520	520/515	525/525	525/525
KV – Knee Pivot to Floor (mm)	490-505	493/490	505/495	495/490	498/500
HW – Hip Width (mm)	356-391	356	356	357	358
THORAX IMPACTS					
Date	-	28Aug09	02Nov09	21Sept09	09Nov09
Sequential Test Number	-	1	2	1	2
Temperature (°C)	18.9-25.5	21.3	21.4	21.6	22.3
Relative Humidity (%)	10-70	55.7	38.7	53.7	31.7
Probe Speed (m/s)	4.21-4.33	4.26	4.27	4.27	4.27
Upper Rib Acceleration (G)	37-46	43.1	40.4	40.3	39.8
Lower Rib Acceleration (G)	37-46	42.7	39.8	39.0	38.5
Lower Spine Acceleration (G)	15-22	20.1	21.0	17.7	18.1
PELVIS IMPACTS					
Date	-	28Aug09	02Nov09	21Sept09	09Nov09
Sequential Test Number	-	1	2	1	2
Temperature (°C)	18.9-25.5	21.3	21.5	21.6	22.3
Relative Humidity (%)	10-70	55.7	38.9	53.7	31.7
Probe Speed (m/s)	4.21-4.33	4.27	4.27	4.27	4.30
Pelvis Acceleration (G)	40-60	43.4	46.0	41.0	43.9
THORACIC SHOCK ABSORBER					
Shock Absorber ID Number	-	03130164		524	
Damper Setting	1-10	5		5.5	
Date	-	10Sept09		14Sept09	
Sequential Test Number	-	1		1	
Temperature	18.9-25.5	21.6		21.6	
Relative Humidity	10-70	60.5		60.5	
Probe Speed (m/s) Low	3.05	3.08		3.00	
Force (N)	836 – 1125	886.8		1116.8	
Displacement (mm)	30 – 35	31.1		32.9	
Probe Speed (m/s) Middle	4.27	4.27		4.29	
Force (N)	1730 – 2099	1777.0		2062.7	
Displacement (mm)	32 – 37	33.9		35.2	
Probe Speed (m/s) High	6.10	6.09		6.07	
Force (N)	3741 – 4448	3839.8		4139.2	
Displacement (mm)	33 - 40	36.5		36.9	

TEST PARAMETER	SPEC	SID HIII/058		SID HIII/137	
		PRE	POST	PRE	POST
ABDOMINAL COMPRESSION					
Date	-	31July09	30Oct09	08Sept09	30Oct09
Sequential Test Number	-	1	2	1	2
Temperature (°C)	18.9-25.5	20.6	21.2	22.5	21.2
Relative Humidity (%)	10-70	51.1	51.4	51.5	51.4
Force at 13 mm (N)	104-162	151.0	139.4	153.4	150.7
Force at 19 mm (N)	163-221	203.2	206.8	205.9	198.6
Force at 25 mm (N)	222-280	262.2	265.3	259.7	254.3
Force at 33 mm (N)	325-391	350.0	364.9	350.7	334.1
LUMBAR FLEXION					
Date	-	31July09	30Oct09	08Sept09	30Oct09
Sequential Test Number	-	1	2	1	2
Temperature (°C)	18.9-25.5	21.0	21.3	22.0	21.4
Relative Humidity (%)	10-70	51.1	49.3	52.4	52.4
Force at 0° (N)	0-26.7	0	0	0	12.1
Force at 0° (N)	97.8-151.2	103.2	121.5	146.5	140.3
Force at 0° (N)	151.2-204.6	152.9	169.7	182.2	176.4
Force at 0° (N)	204.6-258	207.1	207.3	244.1	235.7
Return Angle	12° Maximum	4.3	6.3	5.4	3.6
HYBRID III LATERAL NECK					
Date	-	04Aug09	31Oct09	09Sept09	09Nov09
Sequential Test Number	-	1	2	1	2
Temperature (°C)	18.9-25.5	22.0	21.1	22.2	22.3
Relative Humidity (%)	10-70	51.1	37.0	54.7	36.2
Pendulum Speed (m/s)	6.89-7.13	7.09	7.09	6.92	6.94
Pendulum Pulse 10ms (m/s)	1.96-2.55	2.07	2.40	1.98	2.16
Pendulum Pulse 20ms (m/s)	4.12-5.10	4.45	5.06	4.26	4.84
Pendulum Pulse 30ms (m/s)	5.73-7.01	6.66	6.88	6.19	6.99
Pendulum Pulse 40 –70 ms (m/s)	6.27-7.64	6.92	6.83	7.05	6.98
Max Head rotation (deg)	66-82	73.1	80.1	73.2	81.0
Head angle crosses zero (ms)	58-67	62.2	66.7	65.4	61.0
Peak Moment (Nm)	73-88	82.1	87.7	84.2	87.4
Moment crosses zero (ms)	49-63	59.2	53.0	63.1	55.6
Max rotation wrt pk. moment (ms)	2-15	13.2	5.52	10.2	7.36
HYBRID III LATERAL HEAD DROP					
Date	-	25Aug09	30Oct09	08Sept09	30Oct09
Sequential Test Number	-	1	2	1	2
Temperature (°C)	18.9-25.5	21.3	21.3	21.3	21.3
Relative Humidity (%)	10-70	55.9	49.3	52.4	51.2
Resultant Max (G)	120-150	147.0	138.2	141.1	140.1
Longituidinal Max (G)	<15	4.20	5.54	4.00	2.23

**DUMMY INSPECTION LIST
PRE AND POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

		SID H3 058		SID H3 137	
		PRE	POST	PRE	POST
	Date	28Oct08	29Oct08	28Oct08	29Oct08
	Performed By	Mike Rawski	Mike Rawski	Mike Rawski	Mike Rawski
PART	INSPECTION	RESULT	RESULT	RESULT	RESULT
Skin	Visual	Pass	Pass	Pass	Pass
Head	Visual, Ballast, Accelerometer Mount	Pass	Pass	Pass	Pass
Neck	Visual and Palpated, Cable Torque	Pass	Pass	Pass	Pass
Spine Box	Visual, Ballast, Weldment, Accelerometer Mount	Pass	Pass	Pass	Pass
Rib Cage	Visual, Palpated, Measured, Stiffness	Pass	Pass	Pass	Pass
Sternum	Visual	Pass	Pass	Pass	Pass
Lumbar Spine	Visual	Pass	Pass	Pass	Pass
Abdomen	Visual	Pass	Pass	Pass	Pass
Pelvis	Visual, Palpated, Accelerometer Mount	Pass	Pass	Pass	Pass
Upper Legs	Visual	Pass	Pass	Pass	Pass
Knees	Visual, Stops, Inserts	Pass	Pass	Pass	Pass
Lower Legs	Visual, Range of Motion	Pass	Pass	Pass	Pass
Ankles	Visual, Range of Motion	Pass	Pass	Pass	Pass
Feet	Visual, Range of Motion	Pass	Pass	Pass	Pass
Joints	1 to 2 G Range	Pass	Pass	Pass	Pass
Other		N/a	N/a	N/a	N/a