

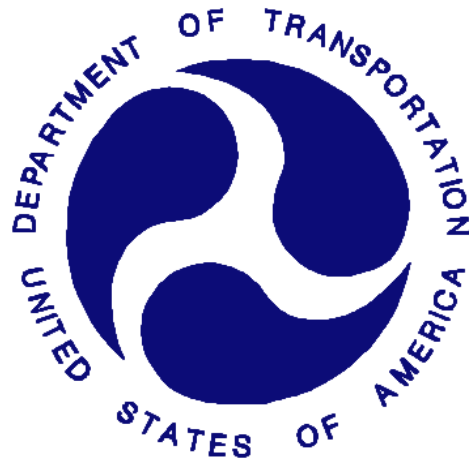
REPORT NUMBER: MCW-DOT-10SN03

**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

2010 DODGE CHARGER 4-DOOR SEDAN

NHTSA NUMBER: MA 0301

**PREPARED BY:
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TEST DATE: 4 NOVEMBER 2009

REPORT DATE: 12 NOVEMBER 2009

FINAL REPORT

**PREPARED FOR:
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NVS-111
1200 NEW JERSEY AVE, SE, ROOM W43-410
WASHINGTON, D.C. 20590**

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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 Charger 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 4 November 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 318 mm at level 3. The test vehicle's occupant performance is as follows: <table border="1" data-bbox="154 1218 1299 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>37.4</td> <td>38.3</td> </tr> <tr> <td>Left lower rib (LLR) acceleration</td> <td>G</td> <td>38.0</td> <td>39.6</td> </tr> <tr> <td>Lower spine (T₁₂) acceleration</td> <td>G</td> <td>44.6</td> <td>43.9</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td></td> <td>41.3</td> <td>41.7</td> </tr> <tr> <td>Pelvis (PEV) acceleration</td> <td>G</td> <td>41.8</td> <td>33.7</td> </tr> <tr> <td>HIC</td> <td></td> <td>138.0*</td> <td>140.2</td> </tr> </tbody> </table> The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event. *The redundant driver head X curve was used to calculate the HIC₃₆.							<u>Units</u>	<u>DRIVER</u>	<u>PASS.</u>	Left upper rib (LUR) acceleration	G	37.4	38.3	Left lower rib (LLR) acceleration	G	38.0	39.6	Lower spine (T ₁₂) acceleration	G	44.6	43.9	Thoracic Trauma Index (TTI)		41.3	41.7	Pelvis (PEV) acceleration	G	41.8	33.7	HIC		138.0*	140.2
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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 Chrysler Group, LLC.

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 Charger 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 1882.9 kg test vehicle was impacted by the 1357.2 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 4 November 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 056 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

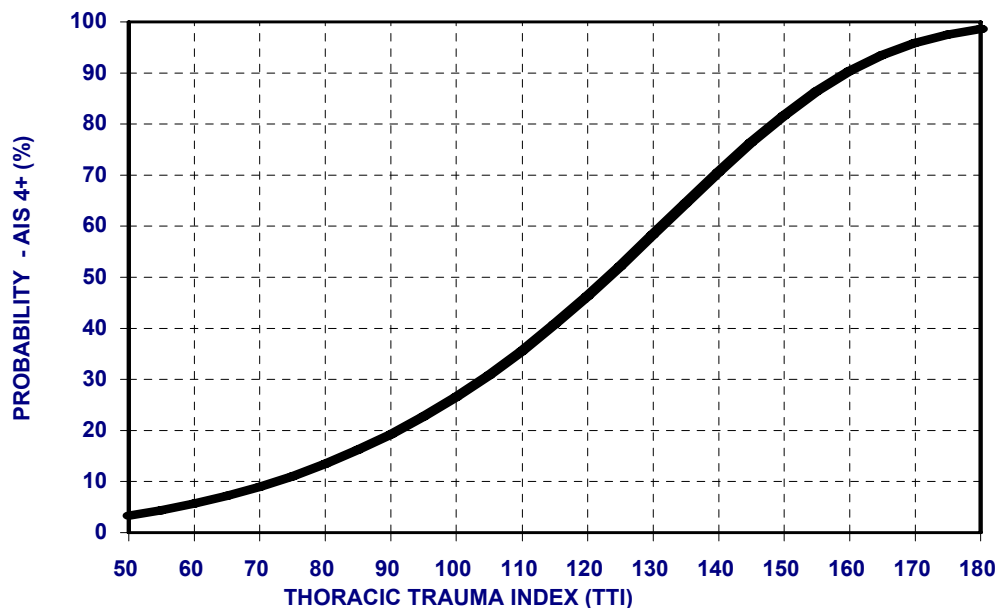
The test vehicle sustained a maximum static crush of 318 mm at level 3, 1500 mm rearward of the vertical impact line.

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	138.0*	140.2
T1 (ms)	29.0	42.8
T2 (ms)	61.0	58.7
TTI	41.3	41.7
Maximum pelvic acceleration (G)	41.8	33.7

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.

*The redundant driver head X curve was used to calculate the HIC36.

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
Pelvis/torso airbag	No	N/a	No	N/a
Head airbag	No	N/a	No	N/a
Curtain airbag	Yes – side header	Deployed	Yes	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	Charger	AM/FM radio	Yes
Body style	4-door sedan	All wheel drive	No
NHTSA number	MA 0301	Combo bag	No
MCW test ID	10SN03	Console	Yes
VIN	2B3CA4CD3AH108742	Cruise/speed control	Yes
Color	Red	Curtain bag	Yes
Build date	August 2009	Disc brakes	Yes
Engine No. of cylinders	6	Frontal bag	Yes
Engine Displacement (L)	2.7	Power brakes	Yes
Engine Placement	Longitudinal	Power door locks	Yes
Transmission	Automatic	Power steering	Yes
Final drive	Rear wheel drive	Power windows	Yes
Delivery date	October 14, 2009	Pelvis/torso bag	No
Odometer reading	111	Tilt steering wheel	Yes

CERTIFICATION LABEL INFORMATION			
Manufacturer	Chrysler Group, LLC	GVWR (kg)	2225
		GAWR front (kg)	1275
Date of manufacture	August 2009	GAWR rear (kg)	1275

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	392.4	(A)
Number of occupants (7) X 68.04 kg	kg	340.2	(B)
Cargo capacity (RCLW) †	kg	52.2	(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	439.5	497.6	496.2
Right front	kg	441.8	422.3	425.5
Left rear	kg	389.2	483.5	488.7
Right rear	kg	406.0	479.5	479.3
Total front	kg	881.3	919.9	921.7
% Total front	%	52.6	48.9	48.8
Total rear	kg	795.2	963.0	968.0
% Total rear	%	47.4	51.1	51.2
Total	kg	1676.5	1882.9	1889.7

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	1676.5	(D)
Maximum cargo capacity (RCLW)	kg	52.2	(C)
Mass of SID HIII's (1 or 2)	kg	161.0	(E)
Test vehicle target mass (TVTW)	kg	1889.7	(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)	42.6 kg
Location	Front center of trunk
<u>Components removed from test vehicle</u> Non-struck front and rear door glasses; Front passenger seat head rest Non-struck front and rear door interior panels	

IMPACT LOCATION ON TEST VEHICLE	
Wheelbase	3050 mm
Nominal impact point	508 mm rearward of front axle
Actual impact point	494 mm rearward of front axle

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

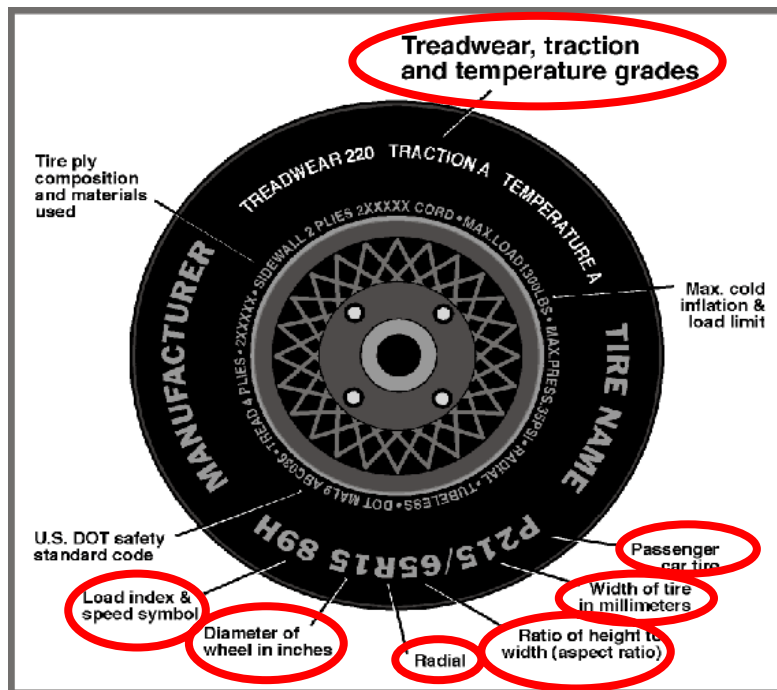
TEST VEHICLE ATTITUDES				
	Units	As delivered	As tested	Fully loaded
Left front	mm	812	798	795
Right front	mm	808	801	801
Left rear	mm	819	781	778
Right rear	mm	813	789	783
CG (X)	mm	1446.7	1559.9	1562.4

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

CG (X) measured rearward from front axle centerline

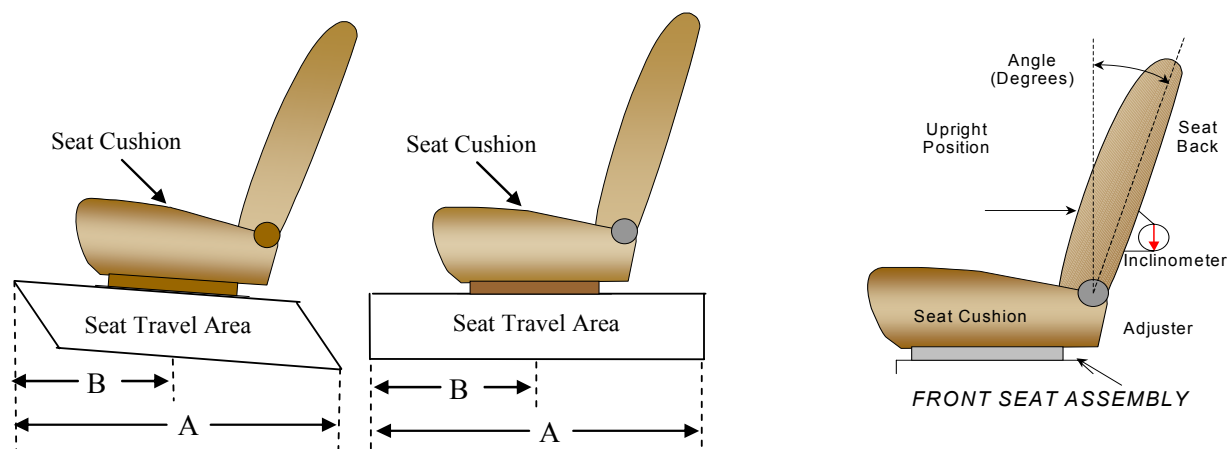
AUTOMATIC DOOR LOCK (ADL) INFORMATION				
	Left front	Left rear	Right front	Right rear
ADL present	Yes	Yes	Yes	Yes
ADL deactivated	No	No	No	No
Deactivation method	N/a			
Door lock status	Locked	Locked	Locked	Locked

DATA SHEET NO. 2
TEST VEHICLE TIRE INFORMATION



TIRE INFORMATION		
Measured Parameter	Front	Rear
Maximum tire pressure (kPa)	300	300
Cold / test pressure (kPa)	210	210
Recommended tire size	P215/65R17	P215/65R17
Tire size on vehicle	P215/65R17	P215/65R17
Tire manufacturer	Goodyear	Goodyear
Tire name	Integrity	Integrity
Tire type	Radial tubeless	Radial tubeless
Tire width (mm)	215	215
Ratio of height to width (aspect ratio)	65	65
Radial	Yes	Yes
Wheel diameter (inches)	17	17
Load index & speed symbol	98T	98T
Tread wear	460	460
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	Manual/Adjustable	Non-adjustable
Fore/aft total travel (mm)	267	N/a
Number of detents	33	N/a
Test position	16th notch from full forward	As positioned

‡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 (measured wrt seat back)	24°	Non-adjustable
Test position	11th notch from full upright	As positioned

‡Full upright = notch 0

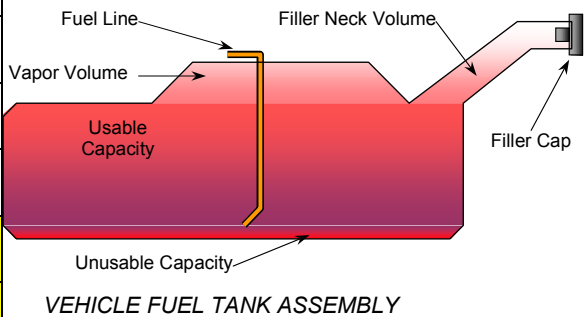
Seat belt position

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)	58	N/a
Test position	3rd from highest	As positioned

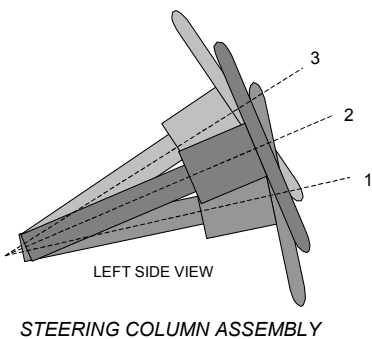
DATA SHEET NO. 3
TEST VEHICLE INFORMATION (CONTINUED)

Fuel tank information

STODDARD INFORMATION			
Description	Units	Value	
Usable capacity of standard equipment fuel tank	L	68.1	
Usable capacity of optional equipment fuel tank	L	0	
Usable capacity of vehicle used for certification testing to requirements	L	68.1	
Amount of stoddard added for test	L	63.4	
% Usable capacity (92%-94%)	%	93.1	
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.		

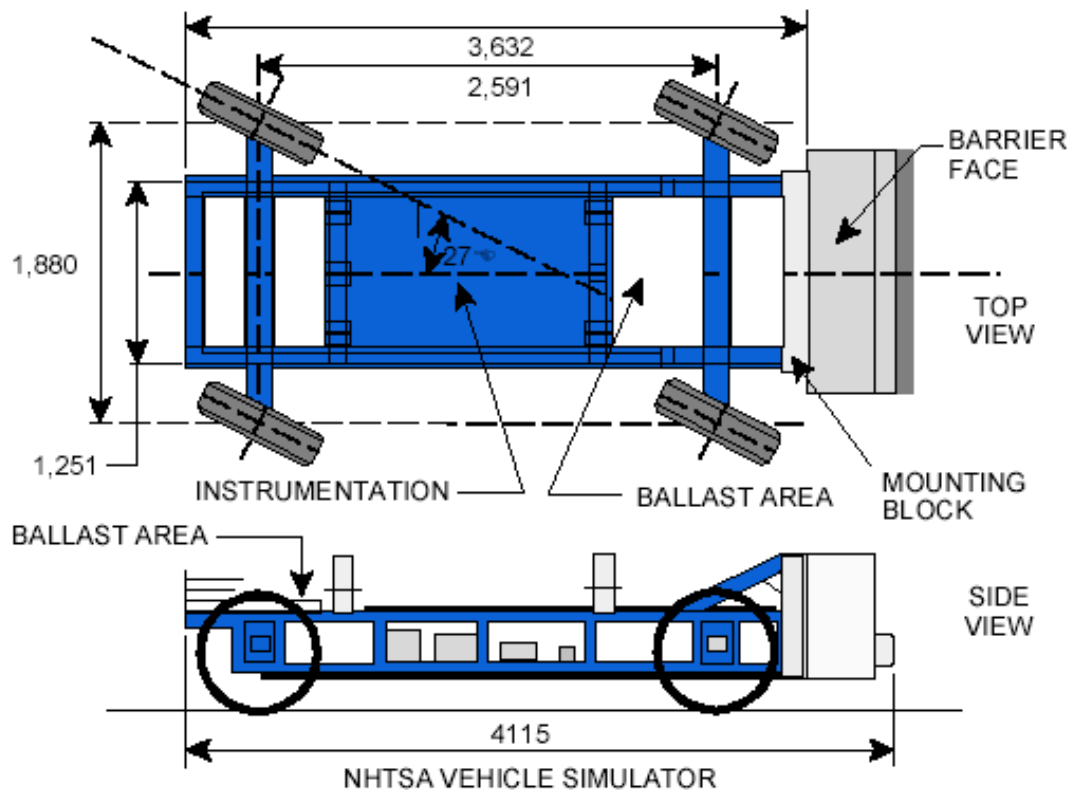
Steering wheel information

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	23.7°	
Steering wheel fore/aft travel	58 mm	
Number of detents	None	
Test position	Steering wheel positioned 20.8 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

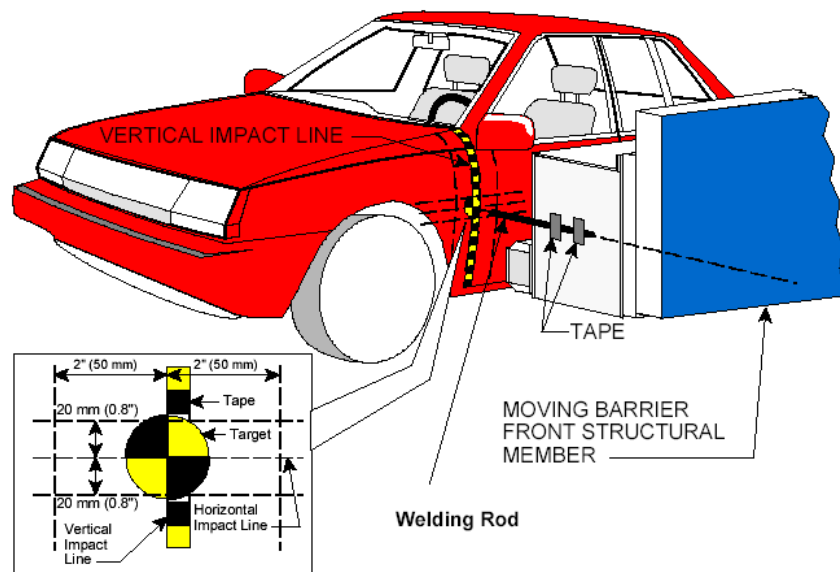
MDB SPECIFICATIONS				
	Units	Specification	Range	Value
Overall Width of Framework Carriage	mm	1251	1226-1276	1245
Overall Length w/Impactor Face	mm	4115	4090-4140	4101
Overall Length w/o Impactor Face	mm	3632	3607-3657	3617
Longitudinal Cg from Front Axle	mm	1123	1098-1148	1135
Track Width	mm	1880	1855-2005	1864
Mass	kg	1361	1356.5-1365.5	1357.2
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	434.1
Right front	kg	327.0
Left rear	kg	247.7
Right rear	kg	348.4
Total front	kg	761.1
% Total front	%	56.1
Total rear	kg	596.1
%Total rear	%	43.9
Total	kg	1357.2

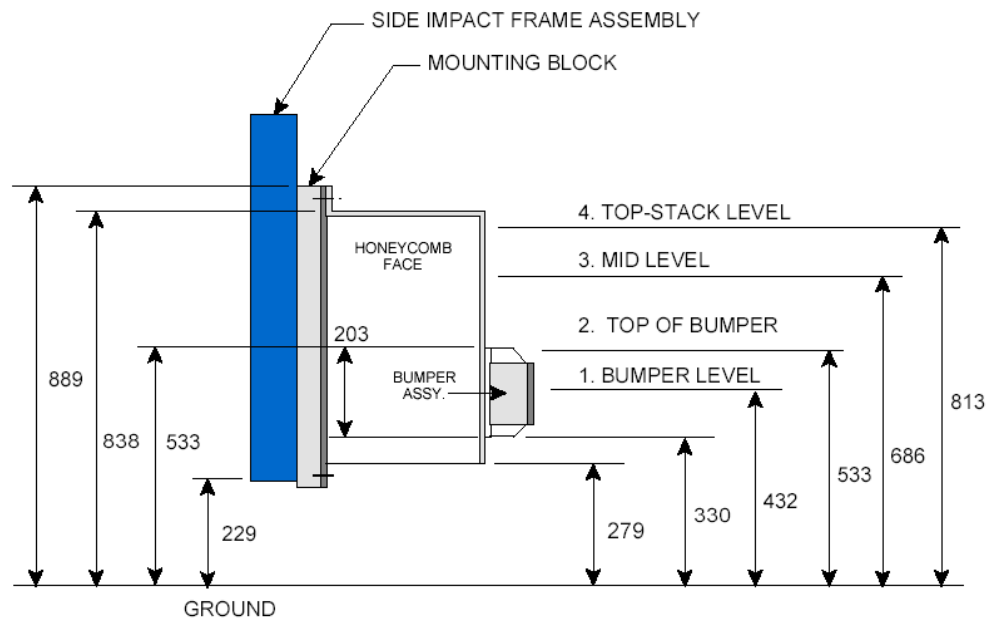
IMPACT SPEED				
	Units	Specification	Range	Value
Primary speed trap	kmh	61.9	61.1-62.7	62.1
Redundant speed trap	kmh	61.9	61.1-62.7	62.0



IMPACT POINT INFORMATION		
Vertical impact line is	508 mm rearward of front axle	
Actual impact is	494 mm rearward of front axle	
Measurement	Value	Tolerance
Impact point distance from vertical impact line	14 mm forward	+/- 50 mm
Impact point distance from horizontal impact line	9 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	278	278
Bottom of bumper	mm	330	327-333	330	331
Top of bumper	mm	533	530-536	533	532
Top of barrier	mm	838	835-841	839	839



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/056
Head contact	Top to roof rail; bottom to curtain airbag	Top to roof rail; chin to curtain airbag
Upper torso contact	To interior door panel 90 mm below window sill	To interior door panel 157 mm below window sill
Lower torso contact	To interior door panel 212 mm below window sill	To interior door panel 206 mm below window sill
Left leg contact	To interior door panel along bottom of armrest	To interior door panel along bottom of armrest
Left knee contact	To interior door panel 330 mm below window sill	To interior door panel 370 mm below window sill

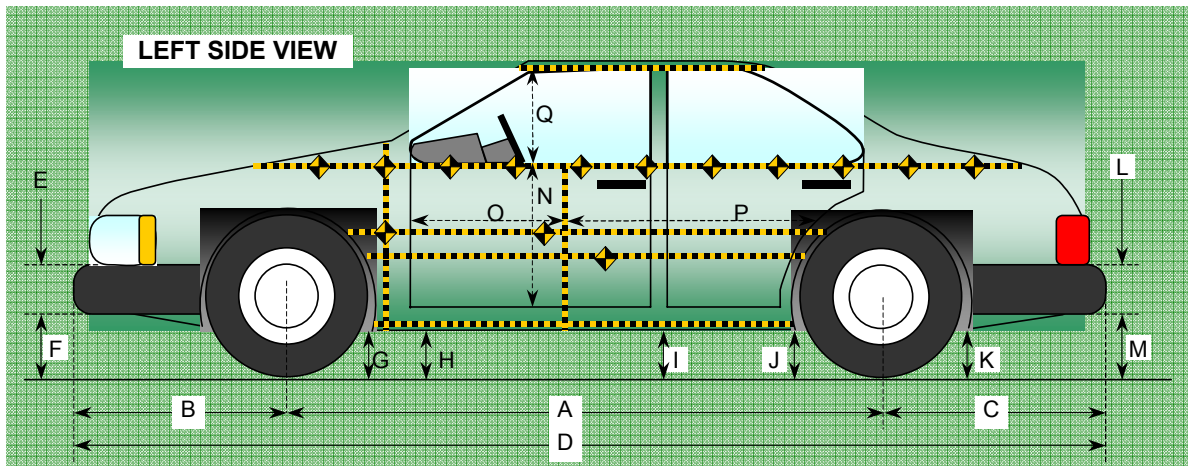
POST TEST DOOR OPENING AND SEAT TRACK INFORMATION		
Description	Front	Rear
Locked/unlocked doors	Locked	Locked
Left side door opening	Closed/locked/inoperable	Closed/locked/inoperable
Right side door opening	Closed/locked/operable	Closed/locked/operable
Seat movement	21 mm seat crush	39 mm seat crush
Seat back failure	None	None

POST TEST STRUCTURAL OBSERVATIONS	
Critical areas of performance	Observations/conclusions
Pillar performance	No damage
Sill separation	Max. separation of 65 mm at C-pillar
Windshield damage	Cracked along A-pillar and along top to vehicle longitudinal centerline
Window damage	Shattered at impact
Other notable effects	None noted

DATA SHEET NUMBER 5
POST TEST OBSERVATIONS (CONTINUED)

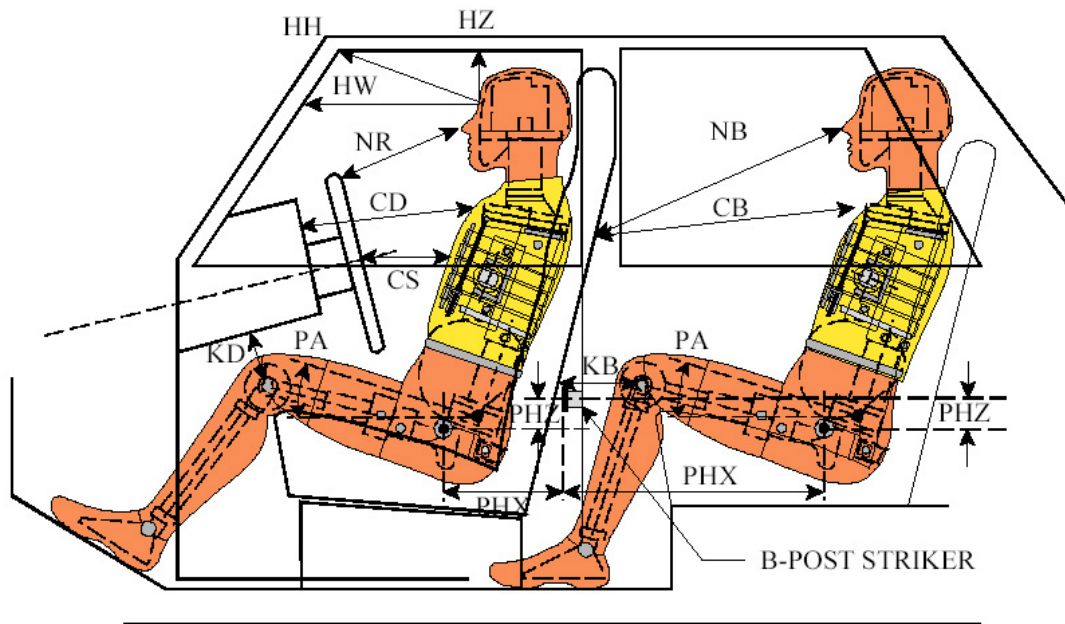
SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION				
Restraint Type	Left front (Driver) occupant Location 01		Left rear (passenger) occupant Location 04	
	Installed	Operation	Installed	Operation
Front airbag	Yes - steering wheel	Did not deploy	No	N/a
Pelvis/torso airbag	No	N/a	No	N/a
Head airbag	No	N/a	No	N/a
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



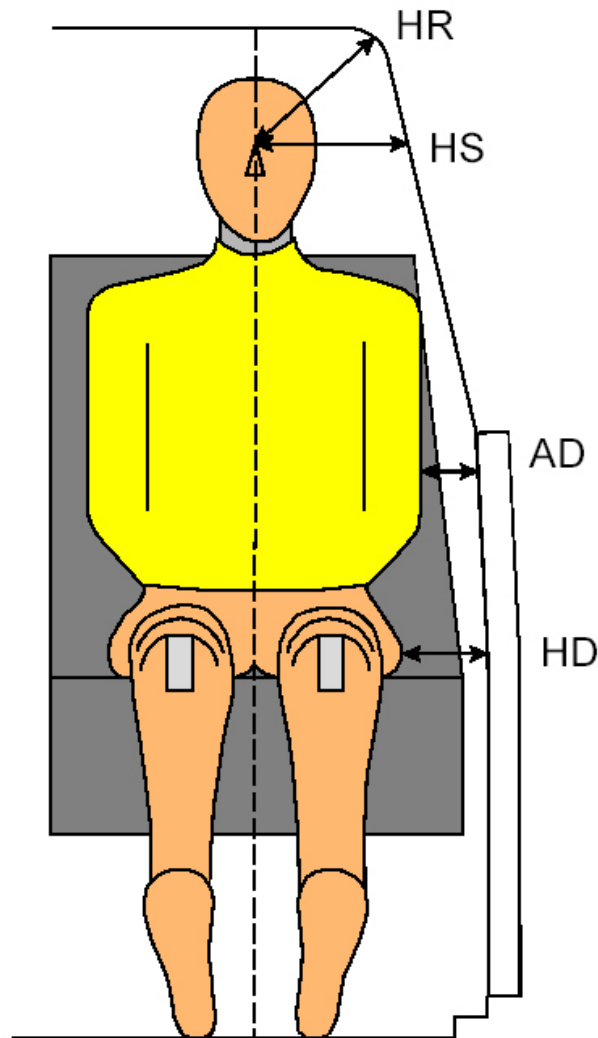
VEHICLE DIMENSIONS				
Code	Description	Pre test	Post test	Change
		mm	mm	mm
A	Wheelbase	3050	3005	-45
B	Front axle to front side of vehicle	571	582	11
C	Rear axle to rear side of vehicle	963	965	2
D	Total length at centerline	5093	5075	-18
E	Front bumper thickness	172	172	0
F	Front bumper bottom to ground	337	366	29
G	Sill height at front wheel well	248	262	14
H	Sill height at front door leading edge	248	268	20
I	Sill height at b-pillar	262	263	1
J1	Sill height at rear wheel well	193	161	-32
J2	Pinch weld height at rear wheel well	270	216	-54
K	Sill height aft of rear wheel well	312	275	-37
L	Rear bumper thickness	335	335	0
M	Rear bumper bottom to ground	383	346	-37
N	Sill height to window bottom sill	760	652	-108
O	Front door leading edge to impact C/L	1162	1142	-20
P	Rear door trailing edge to impact C/L	843	740	-103
Q	Front window opening	440	390	-50
R	Right side length	4584	4593	9
S	Left side length	4584	4552	-32
T	Vehicle width at b-pillar	1873	1633	-240

DATA SHEET NUMBER 7
SID HIII LONGITUDINAL CLEARANCES



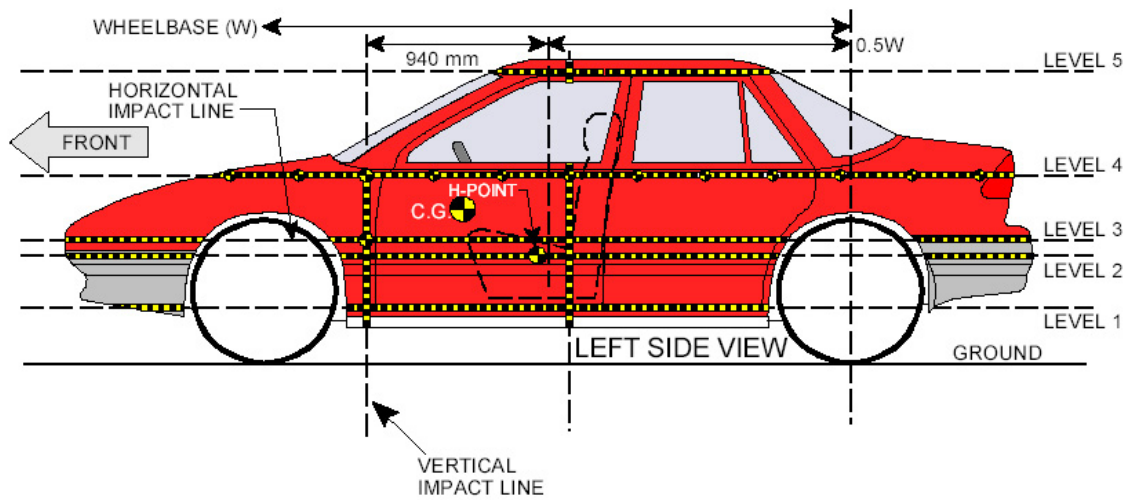
SID HIII LONGITUDINAL CLEARANCE MEASUREMENTS					
Driver code	Pass. code	Measurement description	Units	Left front seat	Left rear seat
		ATD serial number	-	058	056
HH	-	Head to header	mm	596	N/a
HW	-	Head to windshield	mm	807	N/a
HZ	HZ	Head to roof	mm	179	122
NR	NB	Nose to rim/nose to seatback	mm	457	688
CD	CB	Chest to dash or seatback	mm	570	584
CS	-	Chest to steering wheel	mm	372	N/a
KDL	KBL	Left knee to dash or seatback length	mm	192	257
KDA	KBA	Left knee to dash or seatback angle	°	16.1	6.5
KDR	KBR	Right Knee to dash or seatback length	mm	185	261
KDA	KDA	Right knee to dash or seatback angle	°	14.7	10.8
PA	PA	Pelvic angle	°	23.1	23.9
PHX	PHX	H-Point to striker (x-axis)	mm	165	216
PHZ	PHZ	H-Point to striker (z-axis)	mm	139	302

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	056
HR	Head to side header	mm	175	176
HS	Head to side window	mm	336	178
-	Shoulder to door	mm	125	108
AD	Arm to door	mm	152	135
HD	H-point to door	mm	167	165

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	1378	95	1350
4	Window sill	990	228	1500
3	Mid-door	629	318	1500
2	Driver H-point	547	305	1050
1	Axle centerline or sill top	255	135	1050
Maximum static crush		318 mm at level 3 1500 mm rearward from vertical impact line		

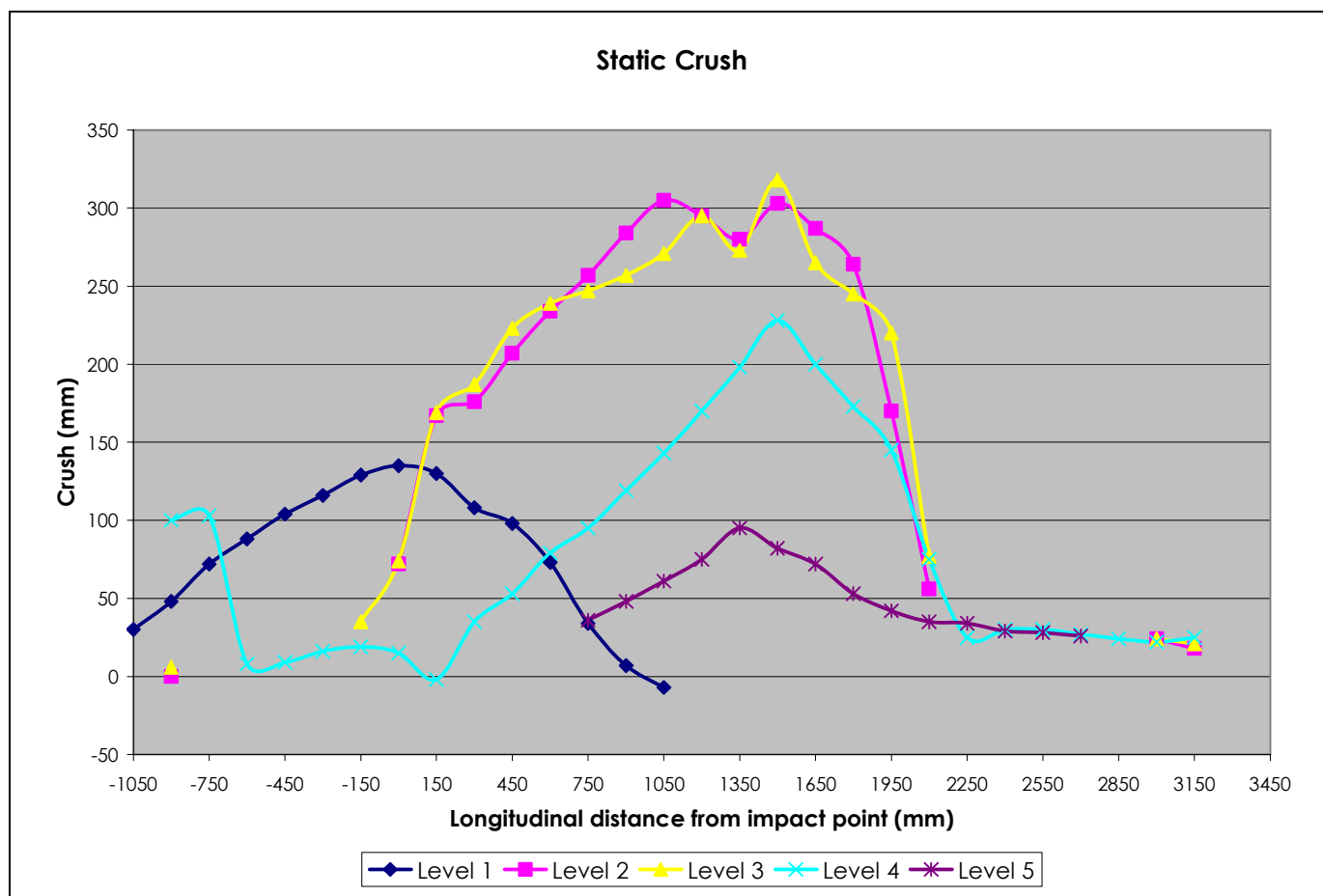
Height measurements taken 750 mm rearward from vertical impact line.

DATA SHEET 10
VEHICLE STATIC CRUSH PROFILE

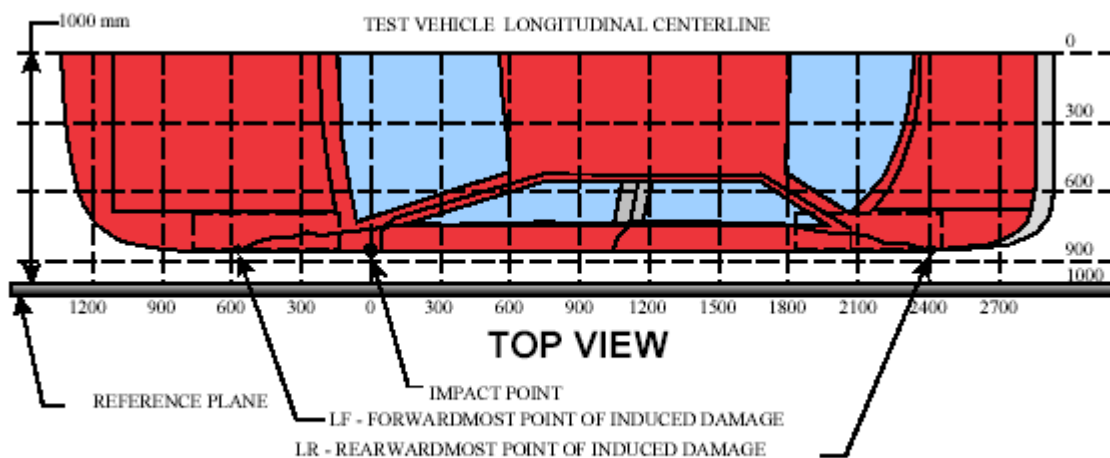
Note: All dimensions are in millimeters with a tolerance of ± 3 mm

TEST VEHICLE STATIC CRUSH																
Level		1			2			3			4			5		
Height		255			547			629			990			1378		
		Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush
DISTANCE IN MILLIMETERS (mm) FROM IMPACT POINT	-1050															
	-900				355	355	0	350	356	6	496	596	100			
	-750										487	590	103			
	-600										476	484	8			
	-450										471	480	9			
	-300										463	479	16			
	-150							323	358	35	457	476	19			
	0	376	406	30	333	405	72	330	404	74	450	465	15			
	150	382	430	48	336	503	167	334	503	169	440	438	-2			
	300	381	453	72	334	510	176	329	516	187	430	465	35			
	450	380	468	88	331	538	207	327	550	223	426	479	53			
	600	380	484	104	330	564	234	325	564	239	418	497	79			
	750	379	495	116	329	586	257	325	572	247	420	515	95	640	676	36
	900	379	508	129	328	612	284	324	581	257	416	535	119	649	697	48
	1050	380	515	135	328	633	305	324	595	271	416	559	143	653	714	61
	1200	380	510	130	328	623	295	324	619	295	417	587	170	654	729	75
	1350	380	488	108	330	610	280	325	598	273	418	616	198	654	749	95
	1500	383	481	98	332	635	303	328	646	318	422	650	228	654	736	82
	1650	386	459	73	333	620	287	330	595	265	424	624	200	652	724	72
	1800	388	422	34	332	596	264	328	573	245	427	600	173	650	703	53
	1950	376	383	7	329	499	170	325	545	220	432	577	145	647	689	42
	2100	372	365	-7	329	385	56	322	399	77	415	490	75	642	677	35
	2250										415	440	25	632	666	34
	2400										420	450	30	625	654	29
	2550										427	457	30	615	643	28
	2700										437	464	27	604	630	26
	2850										452	476	24			
	3000				345	369	24	339	363	24	464	486	22			
	3150				375	393	18	368	389	21	478	503	25			
	3300															

DATA SHEET 10
VEHICLE STATIC CRUSH PROFILE (CONTINUED)

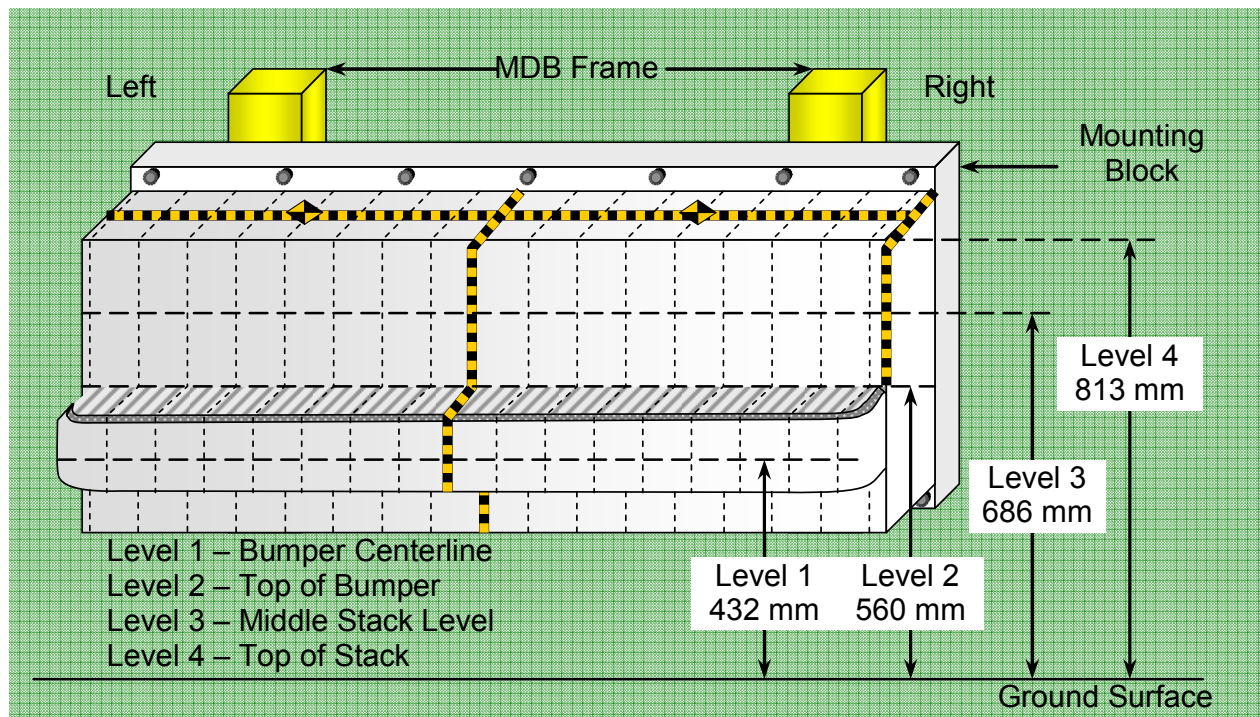


DATA SHEET 11
VEHICLE DAMAGE PROFILE DISTANCES (DPD)



DPD MEASUREMENTS				
	DPD measurement (mm)	Pre test (mm)	Post test (mm)	Crush (mm)
1	-450	345	345	0
2	120	345	465	120
3	690	345	565	220
4	1260	345	612	267
5	1830	345	568	223
6	2400	345	345	0

DATA SHEET 12
DEFORMABLE BARRIER STATIC CRUSH



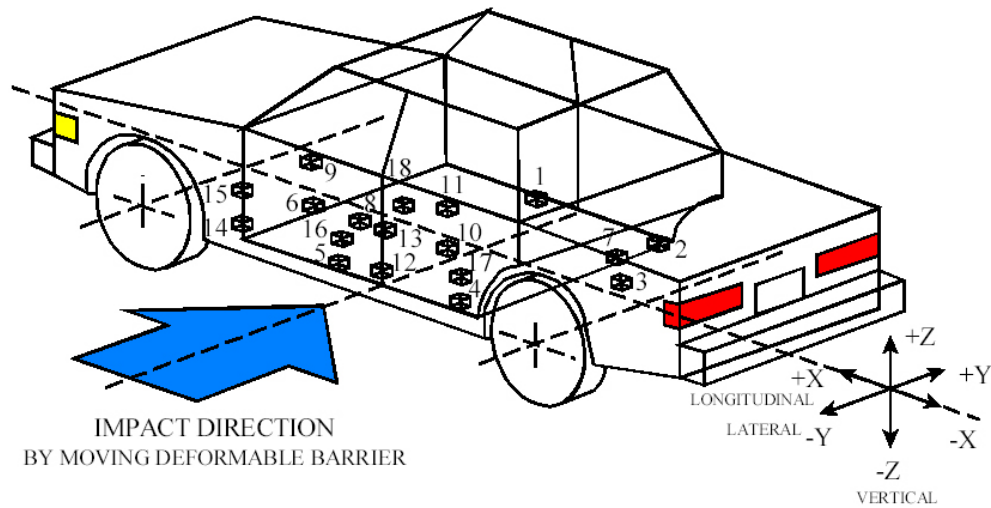
DEFORMABLE BARRIER FACE SUMMARY		
Barrier face manufacturer		Plascore
Serial number		A0709042
Level	Description	Maximum crush
1	Center of bumper	203
2	Top of bumper	151
3	Middle of stack	130
4	Top of stack	195
Maximum post test intrusion is 203 mm at level 1		

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	78	49	46	69	78	51	42	39	52	58	70	87	96	119	149	190	195
3	101	54	41	58	69	52	38	29	25	27	31	42	51	67	95	130	108
2	107	89	82	68	59	53	56	65	75	82	88	94	98	104	118	136	151
1	174	149	141	136	118	118	110	112	119	122	128	133	140	147	172	203	195

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	2868	769	589
2	Right sill at rear seat	1876	764	572
3	Rear floor pan above axle	1000	69	204
4	Left sill at rear door	1860	-783	549
5	Left sill at front door	2852	-788	567
6	Left front door C/L	†	†	†
7	Rear occupant compartment	1962	448	382
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	2323	-852	187
13	Left middle b-pillar	2293	-843	-43
14	Left lower a-pillar	3379	-836	173
15	Left middle a-pillar	3366	-828	-43
16	Front seat track	2602	-659	453
17	Rear seat track or structure	1954	-358	389
18	Vehicle CG	2973	84	254

Origin

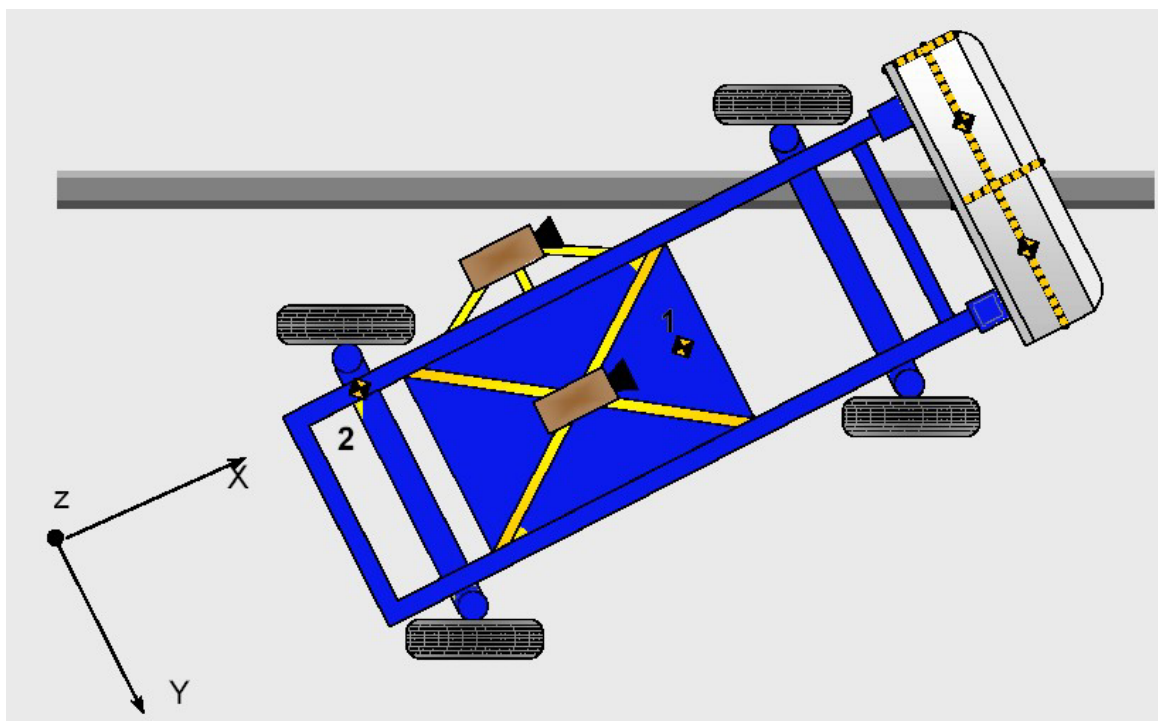
X Rear bumper
Y Midline of vehicle
Z Top of rear bumper

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

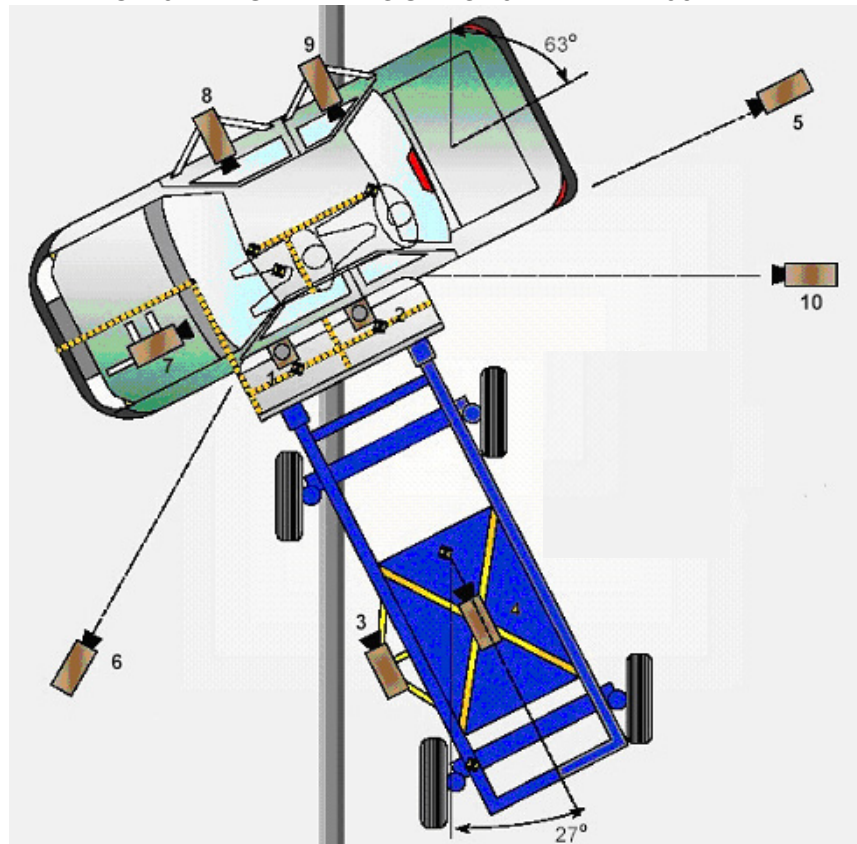
Origin

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	-381	1500	-4179	74.8	8	1000
2	Overhead close-up view of impact plane	-236	-464	-4608	90	12.5	1000
3	MDB onboard close-up view of impact point †	-2058	1086	-221	0.6	35	1000
4	MDB onboard view of driver dummy †	-1476	1722	-669	3.9	13	1000
5	Right side ground level overall view	2527	8043	-475	3.4	50	1000
6	Left side ground level overall view	-1680	-4102	-602	9.2	25	1000
7	Test vehicle onboard driver front view †	224	-700	-353	13.6	25	1000
8	Test vehicle onboard driver side view †	1864	164	-381	15.6	12.5	1000
9	Test vehicle onboard passenger side view	2389	690	-392	16	125	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

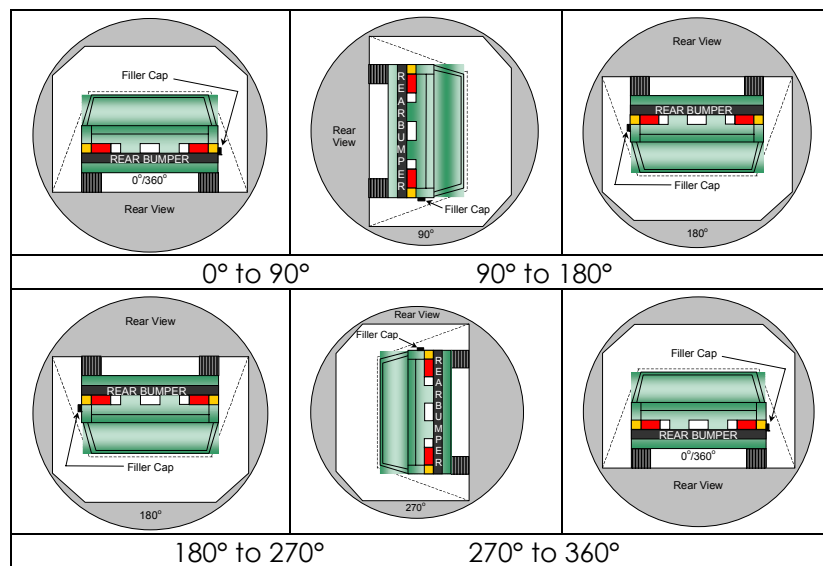
† Camera lost power at T0, videos were unable to be recovered

DATA SHEET 16
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 20° C Test Time: 4:15 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°	64	300	364
180° to 270°	64	300	364
270° to 360°	63	300	363

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
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A-18	Post test right side view of test vehicle	A-12
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A-21	Pre test overhead view	A-14
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
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A-32	Post test left front door	A-19
A-33	Pre test left rear door	A-20
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A-39	Pre test driver, right side view	A-23
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Figure	Photograph Description	Page
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A-49	Post test passenger contact locations (1)	A-28
A-50	Post test passenger contact locations (2)	A-28
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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

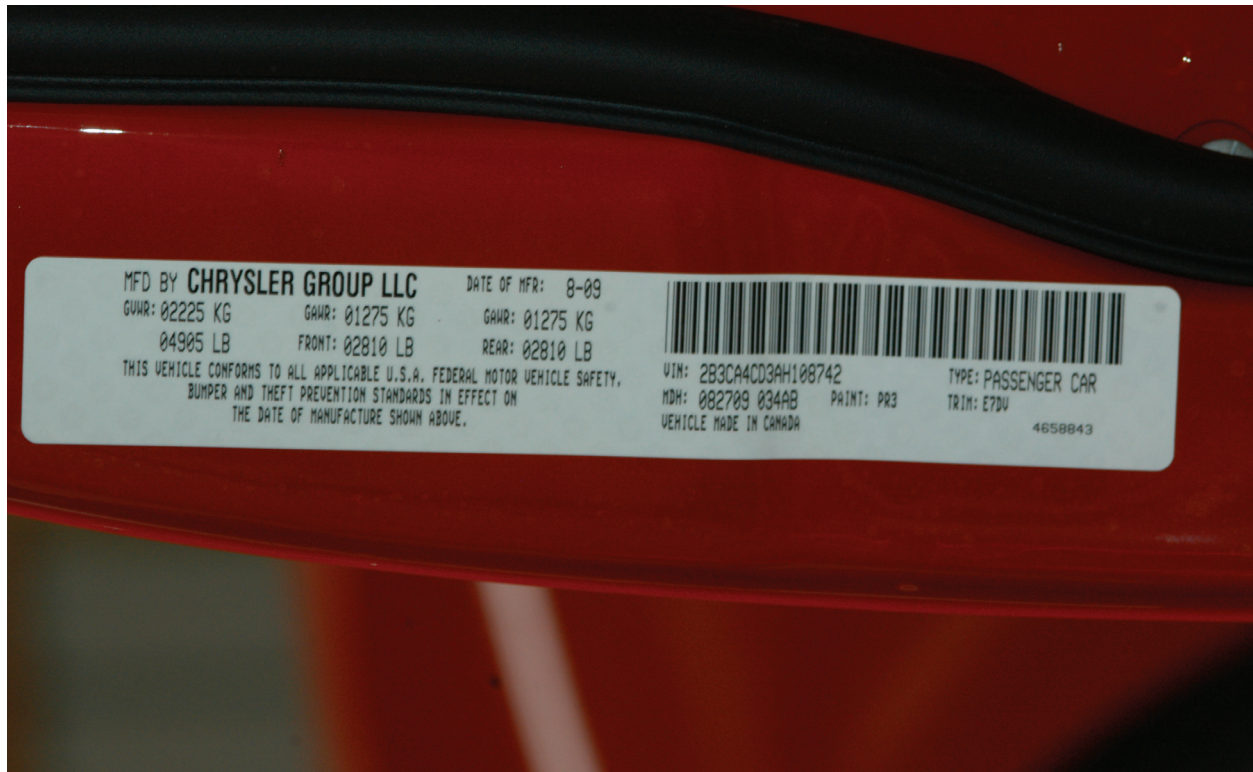


Figure A-3: Manufacturer's label

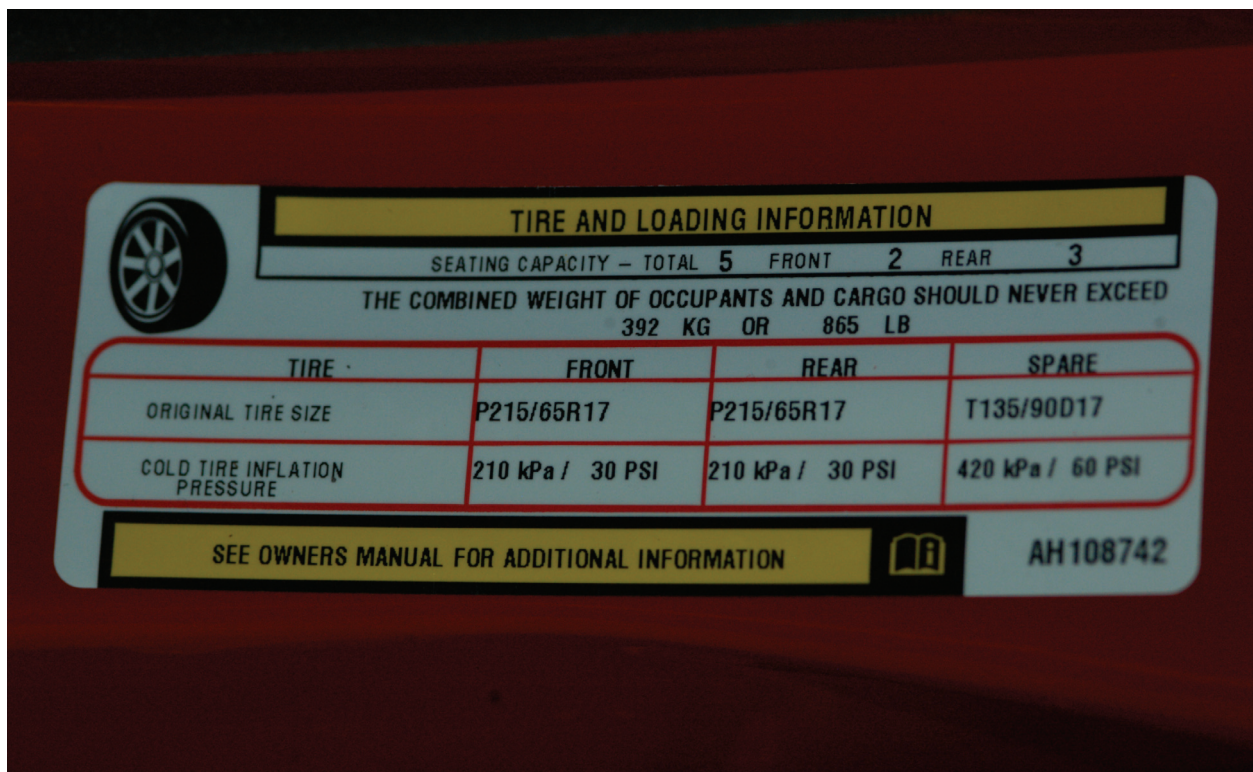


Figure A-4: Tire placard



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

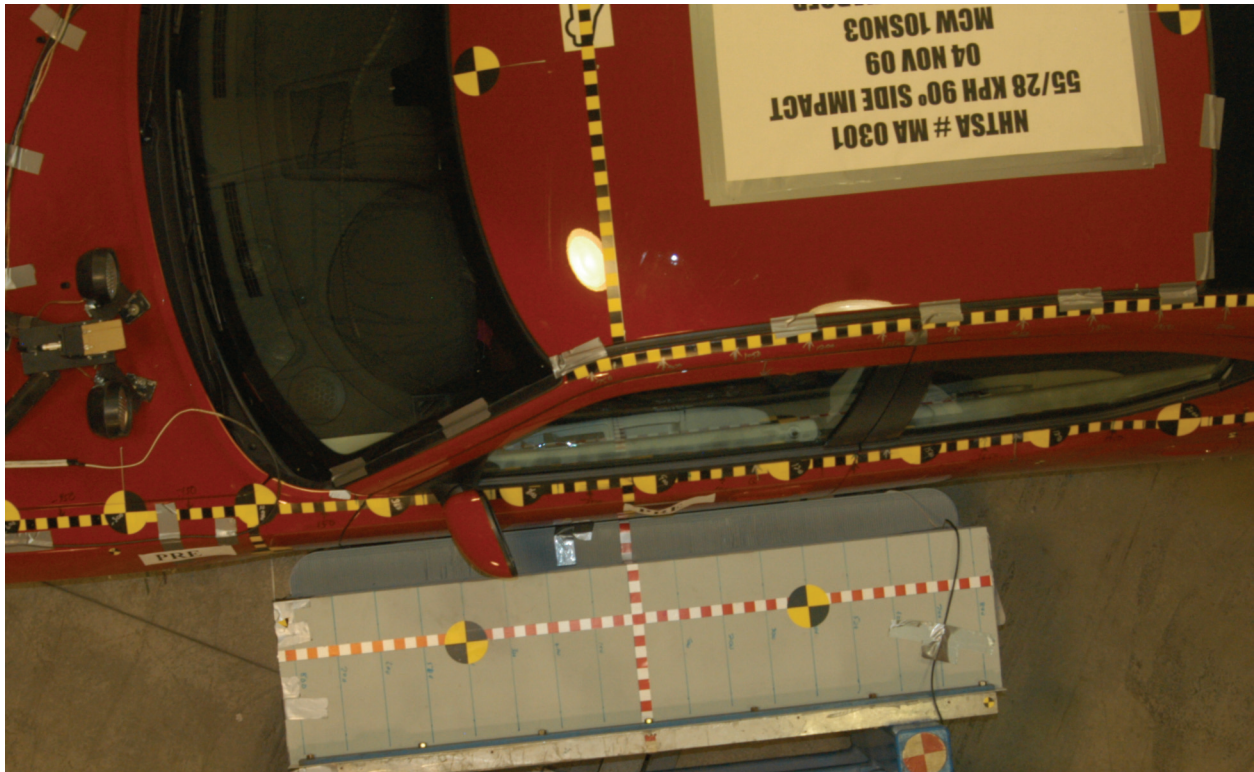


Figure A-23: Pre test overhead close-up view



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)

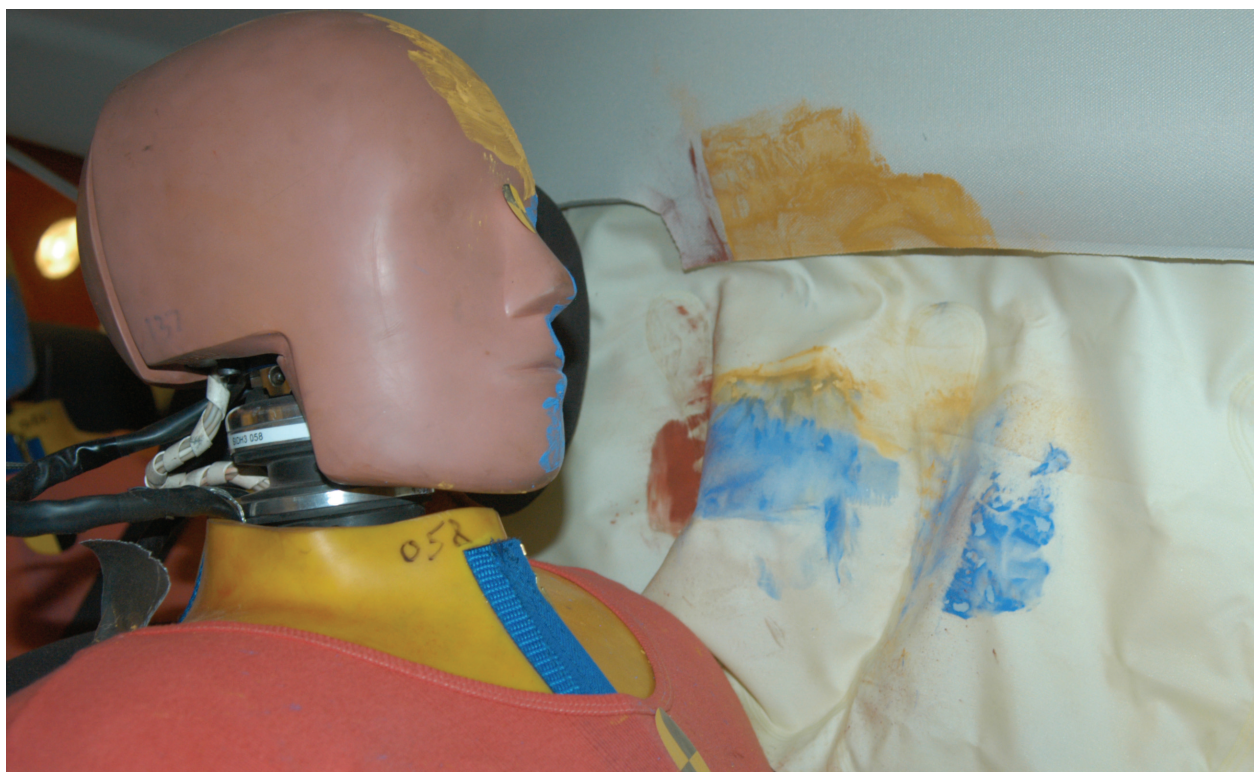


Figure A-42: Post test driver contact locations (2)



Figure A-43: Pre test passenger left side view



Figure A-44: Post test passenger left side view

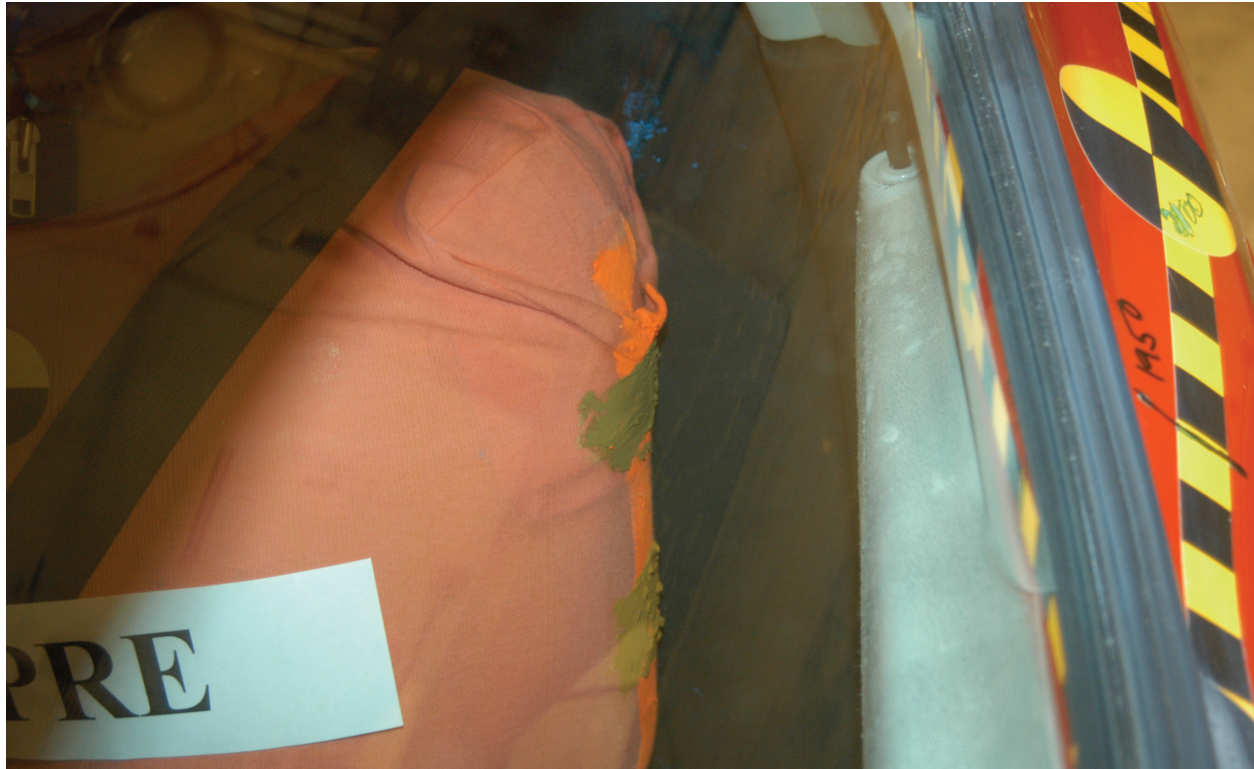


Figure A-45: Pre test passenger shoulder clearance



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)

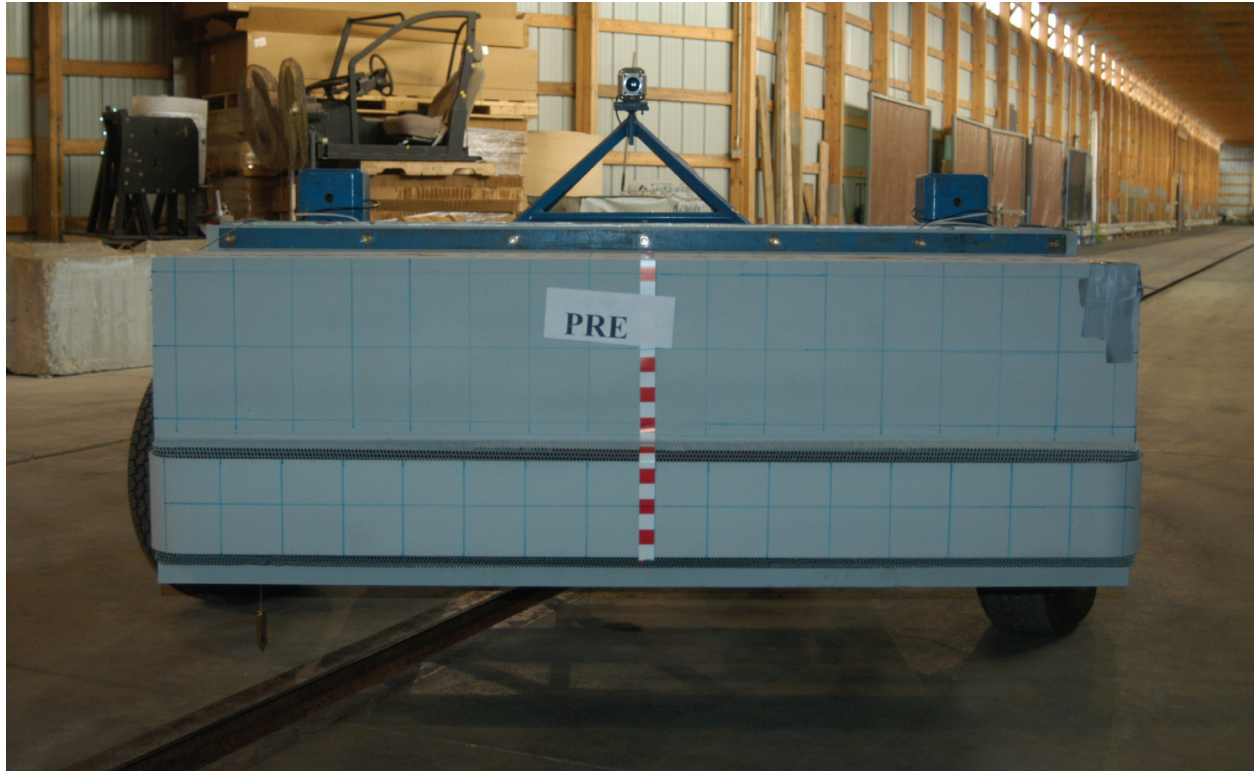


Figure A-51: Pre test front view of MDB barrier face



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

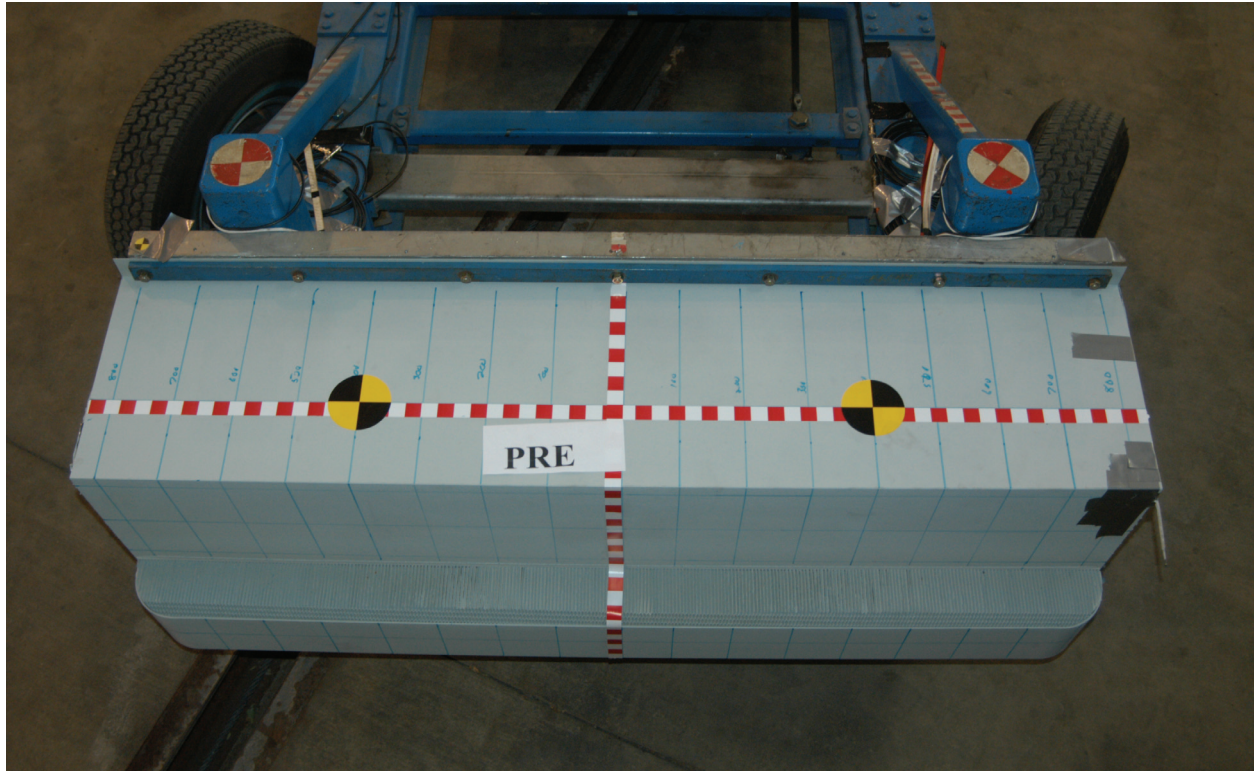


Figure A-53: Pre test overhead view of MDB barrier face

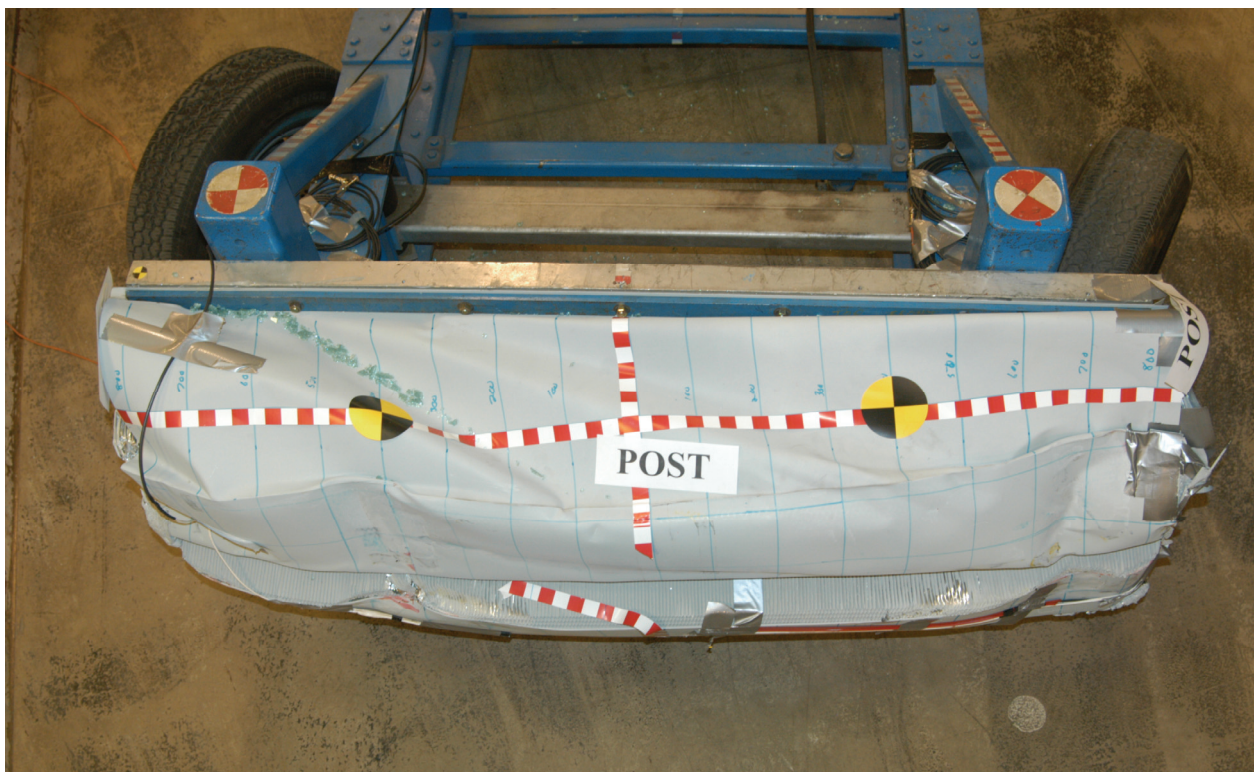


Figure A-54: Post test overhead view of MDB barrier face



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

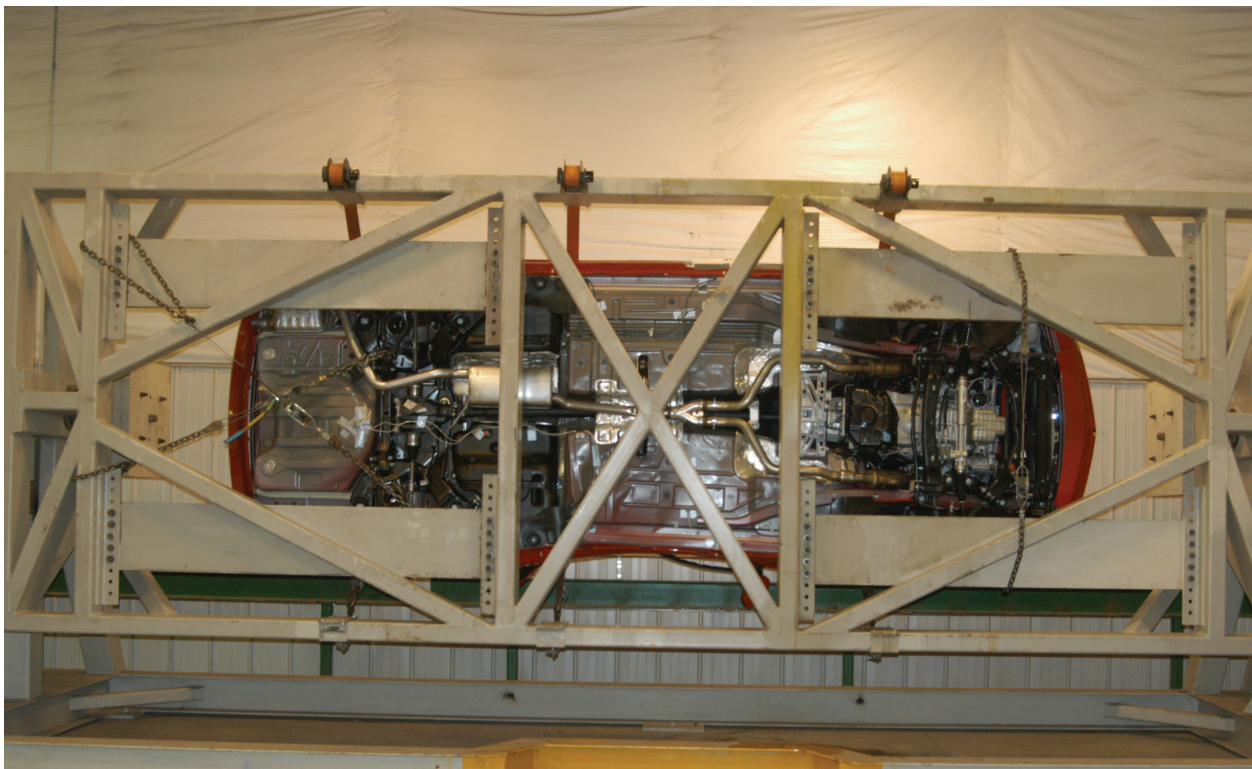


Figure A-60: FMVSS 301 90 degrees



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

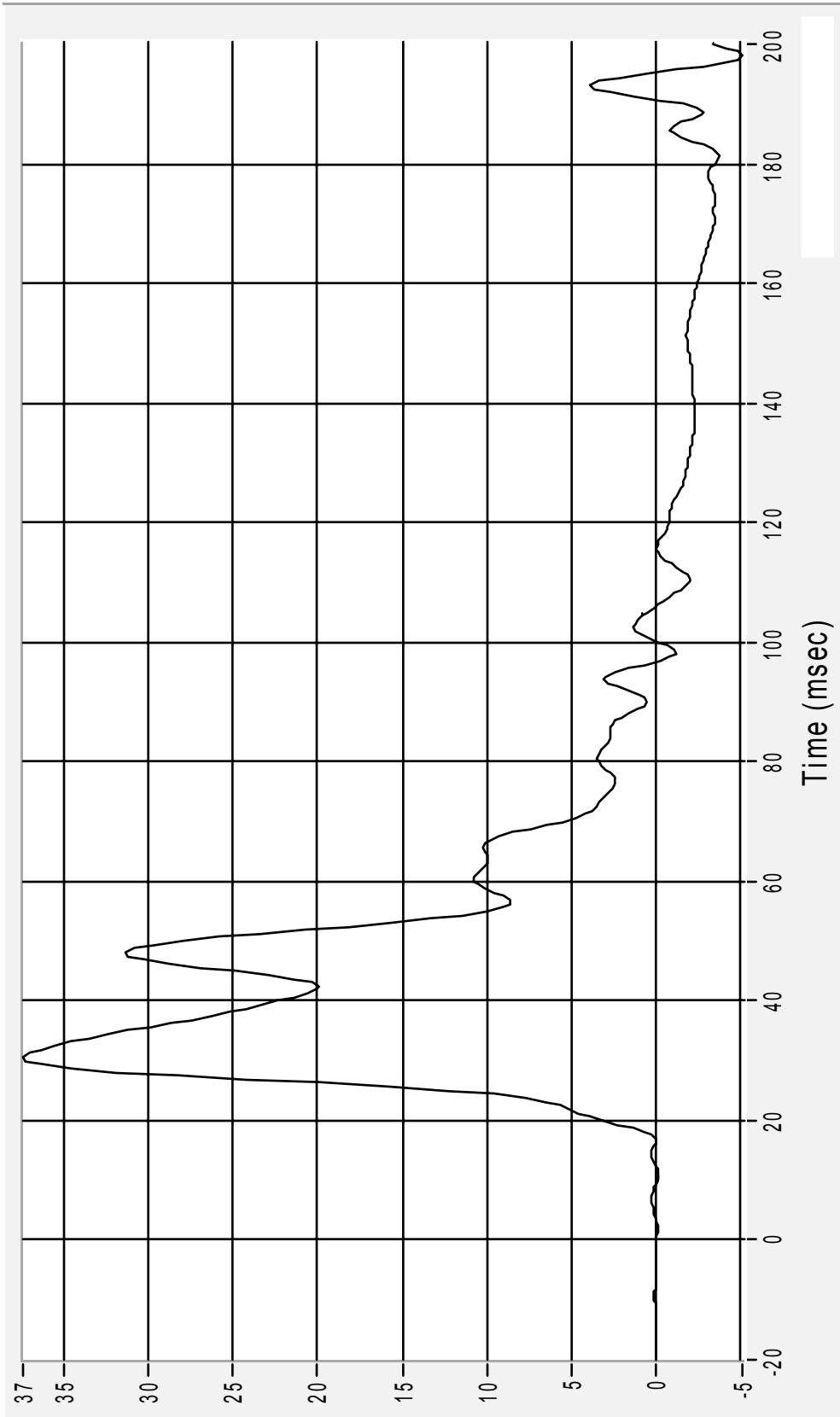
The following dummy, vehicle, and MDB response data can be found in the R&D section of the NHTSA website at: www-nrd.nhtsa.dot.gov/database/nrd-11/veh_db.html.

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	37.4	G	at	30.6	msec
Min	-5.1	G	at	198.1	msec

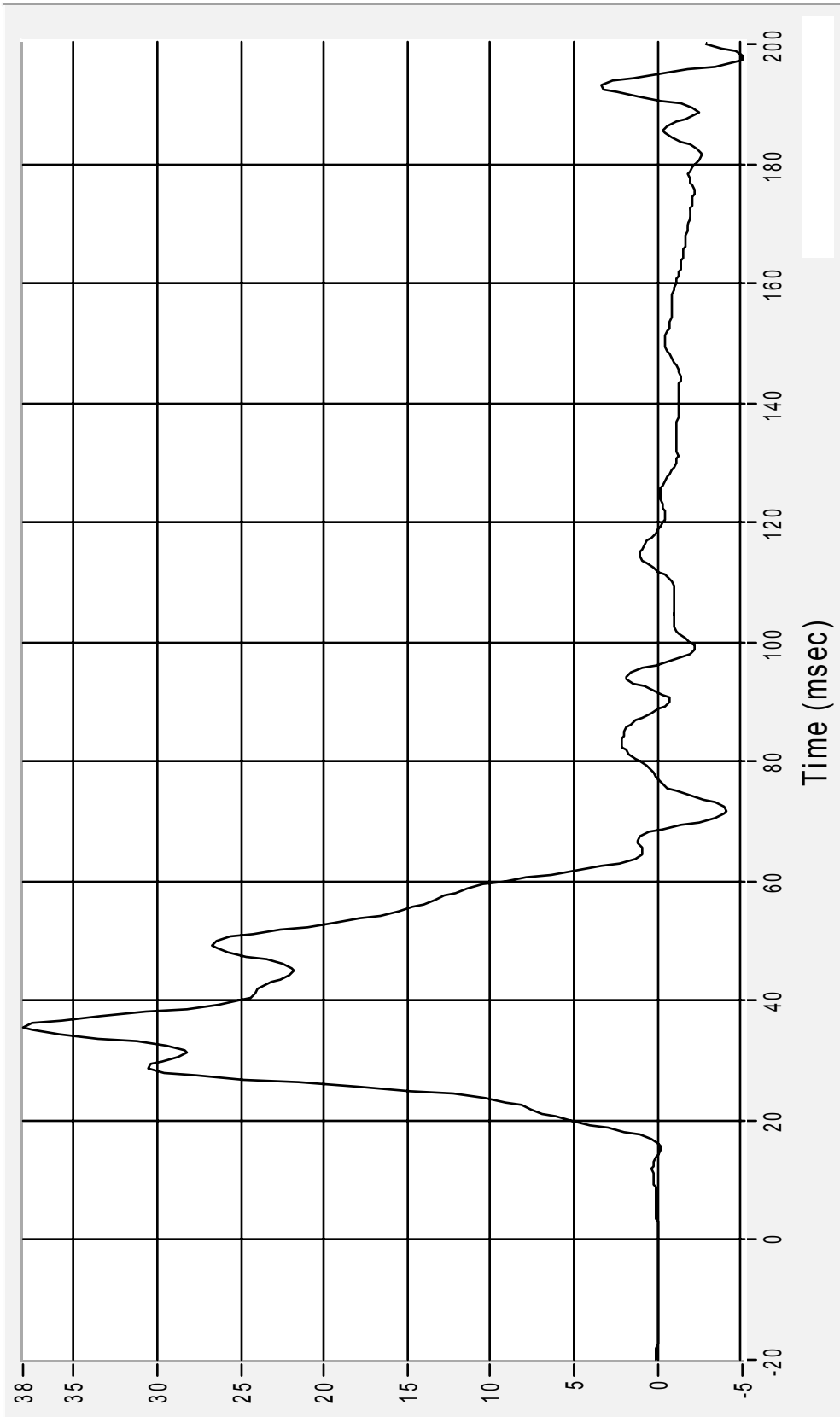


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Driver Lower Rib (Y) Acceleration
 Acceleration (G's) FIR100

Max	38.0	G	at	35.6	msec
Min	-5.1	G	at	198.1	msec

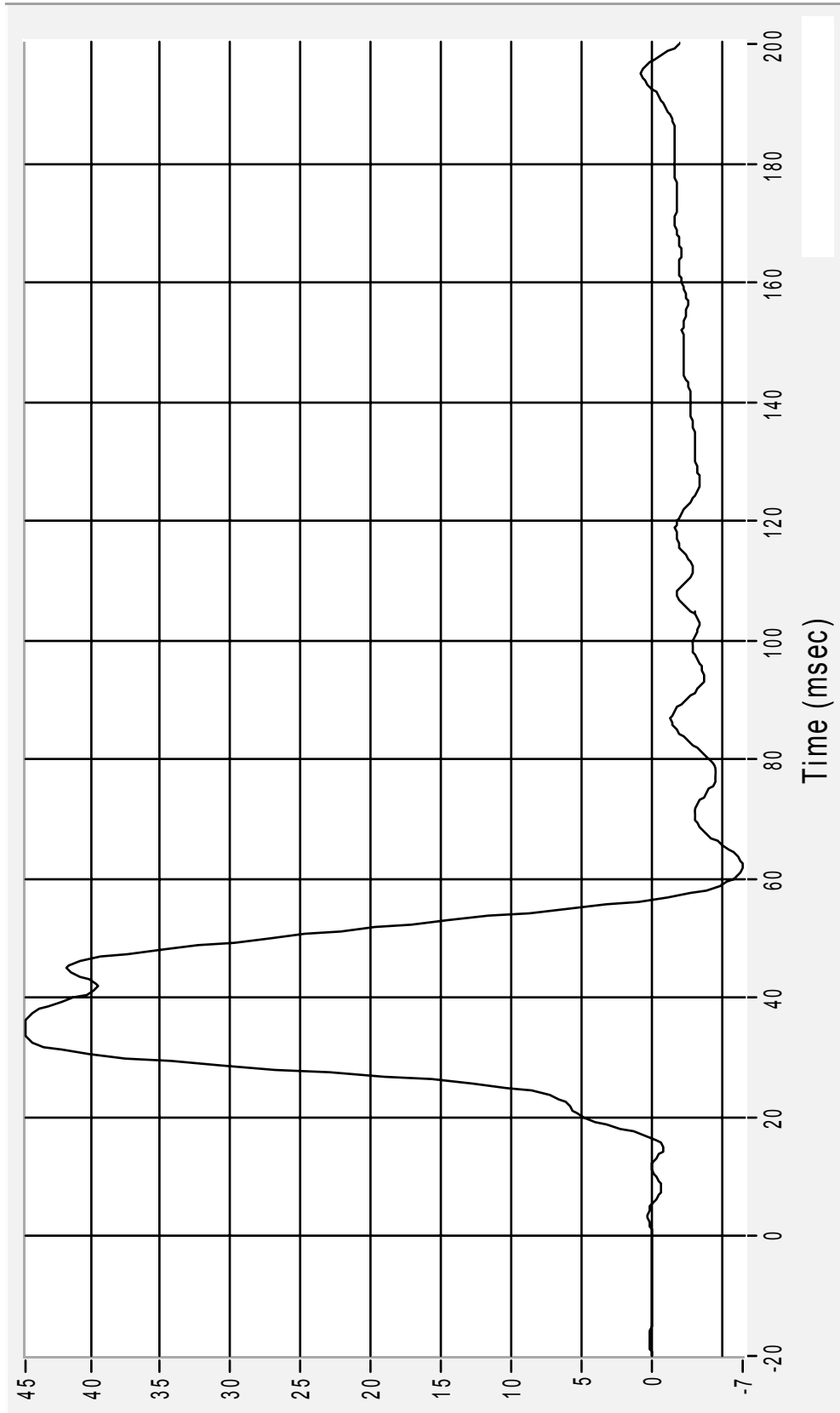


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Driver Lower Spine (Y) Acceleration
 Acceleration (G's) FIR100

Max	44.6	G	at	34.4	msec
Min	-6.5	G	at	62.5	msec

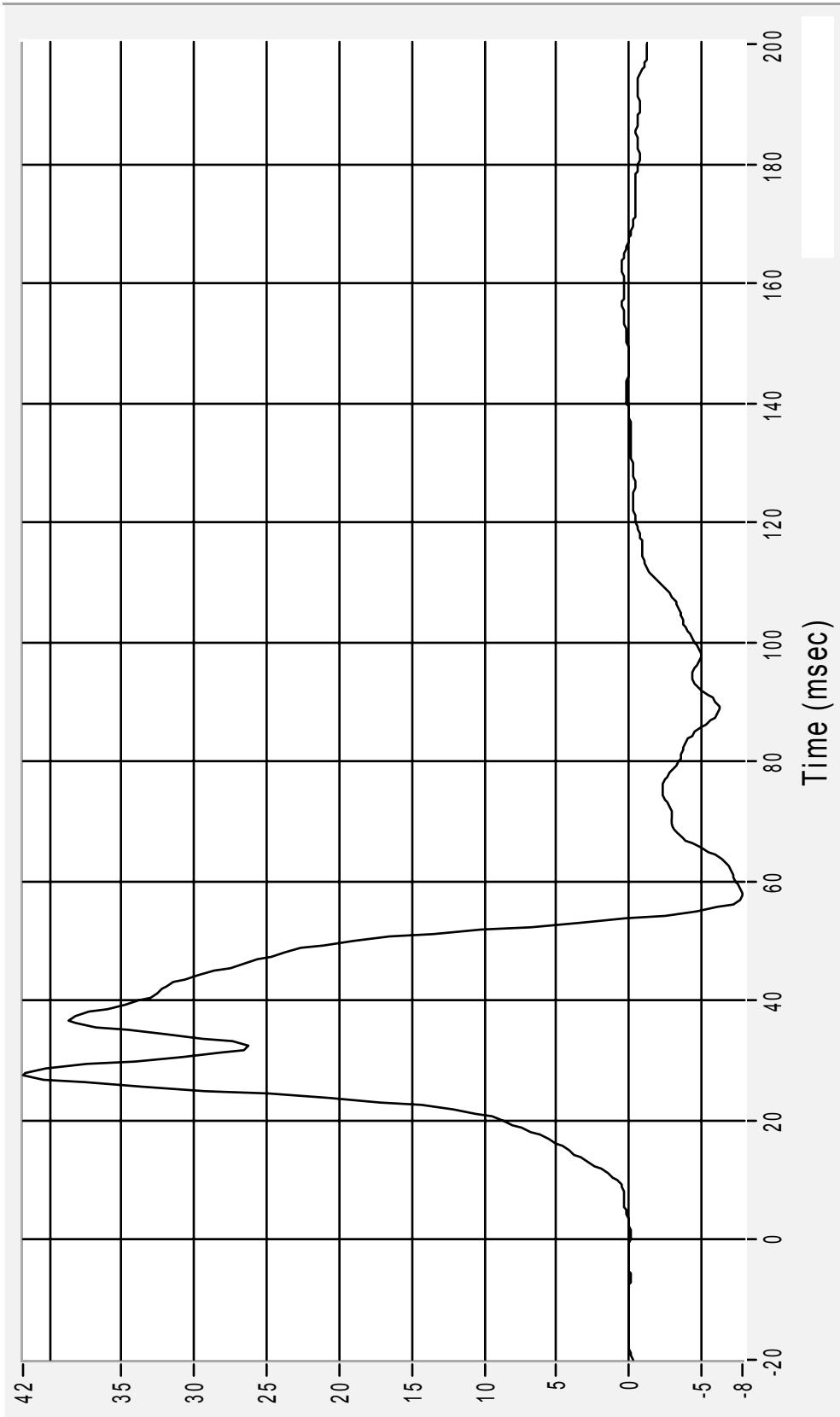


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Driver Pelvic (Y) Acceleration
 Acceleration (G's) FIR100

Max	41.8	G	at	27.5	msec
Min	-7.8	G	at	57.5	msec

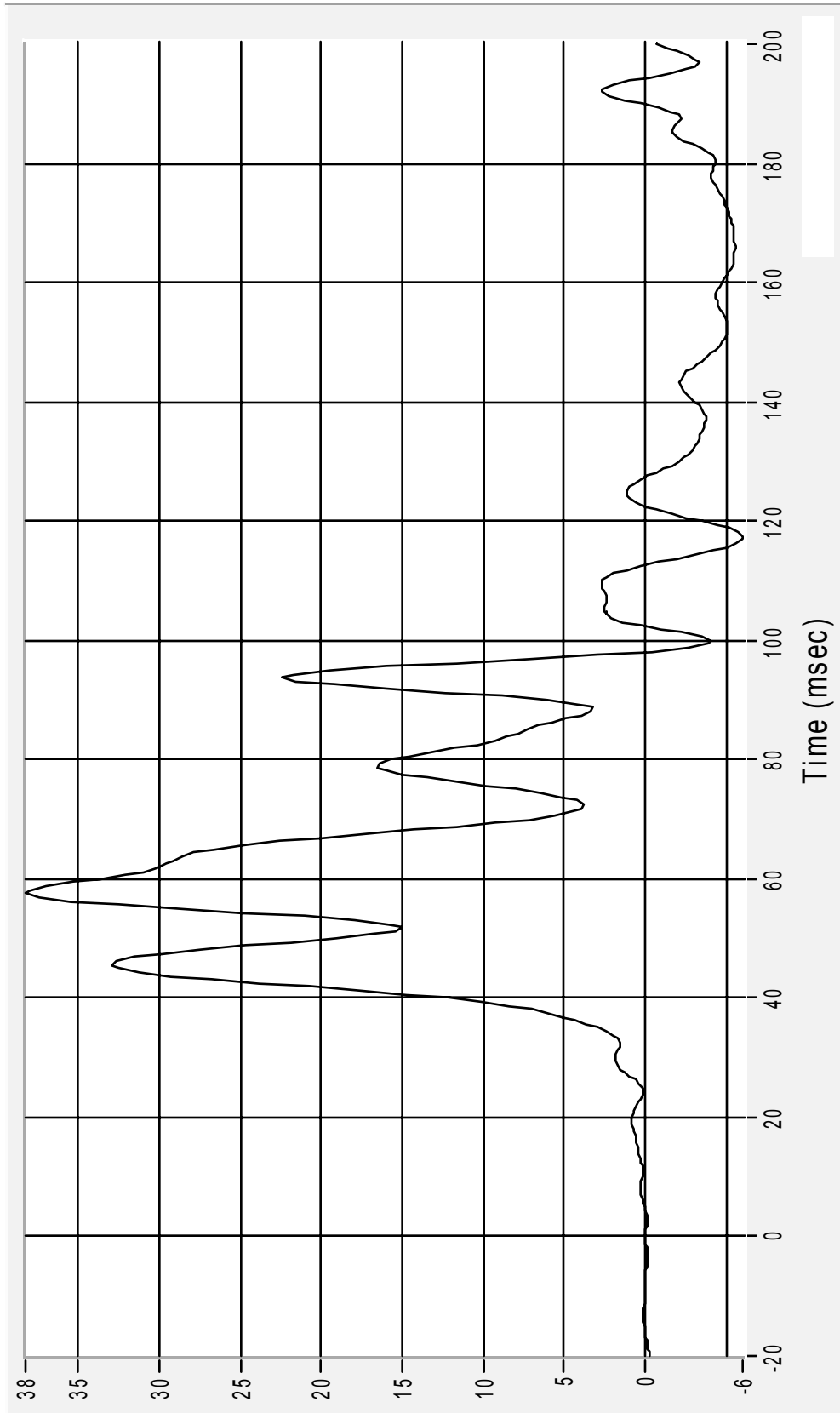


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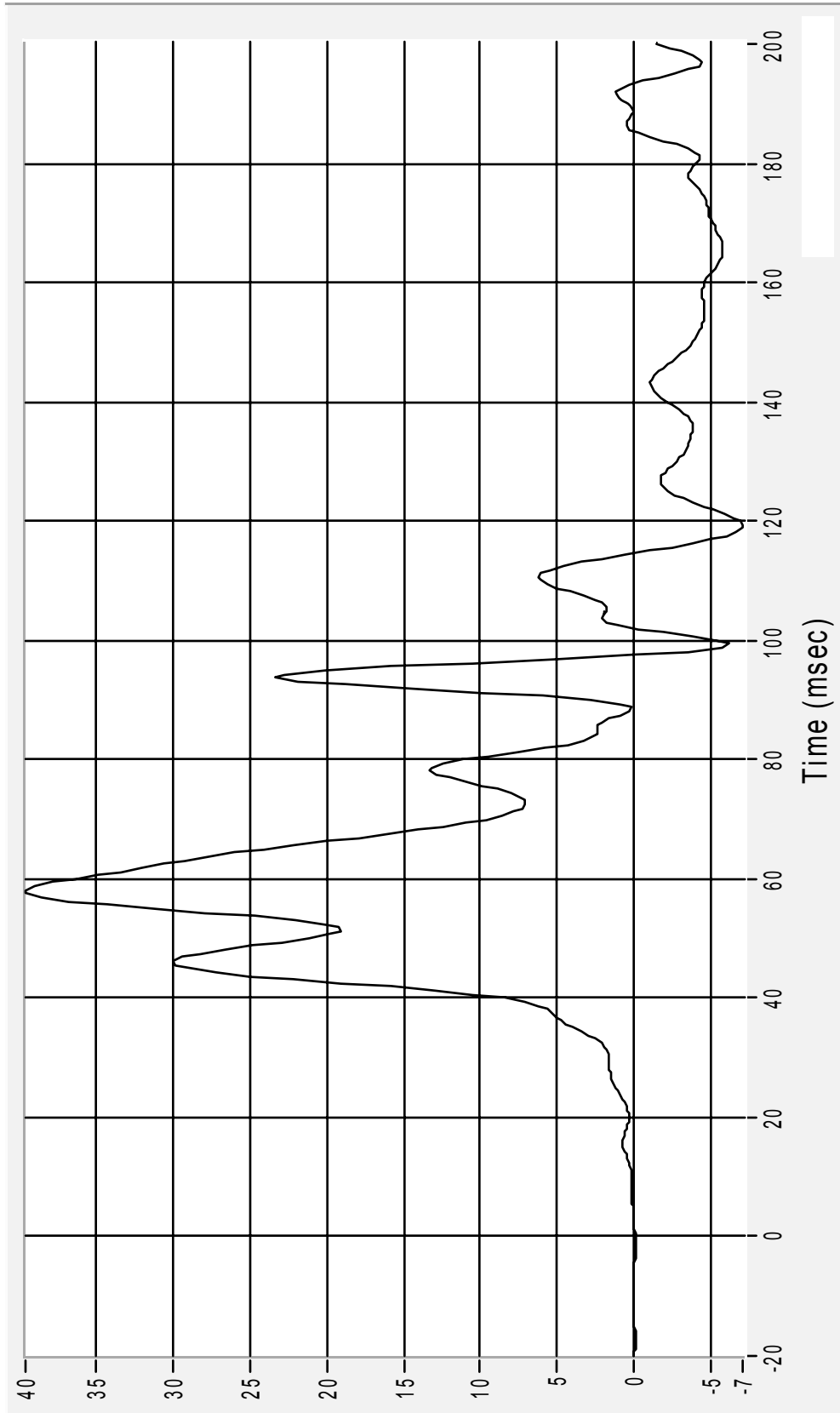
Passenger Upper Rib (Y) Acceleration
 Acceleration (G's) FIR100 Max 38.3 G at 57.5 msec
 Min -6.0 G at 117.5 msec



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Passenger Lower Rib (Y) Acceleration
 Acceleration (G's) FIR100 Max 39.6 G at 58.1 msec
 Min -7.1 G at 119.4 msec

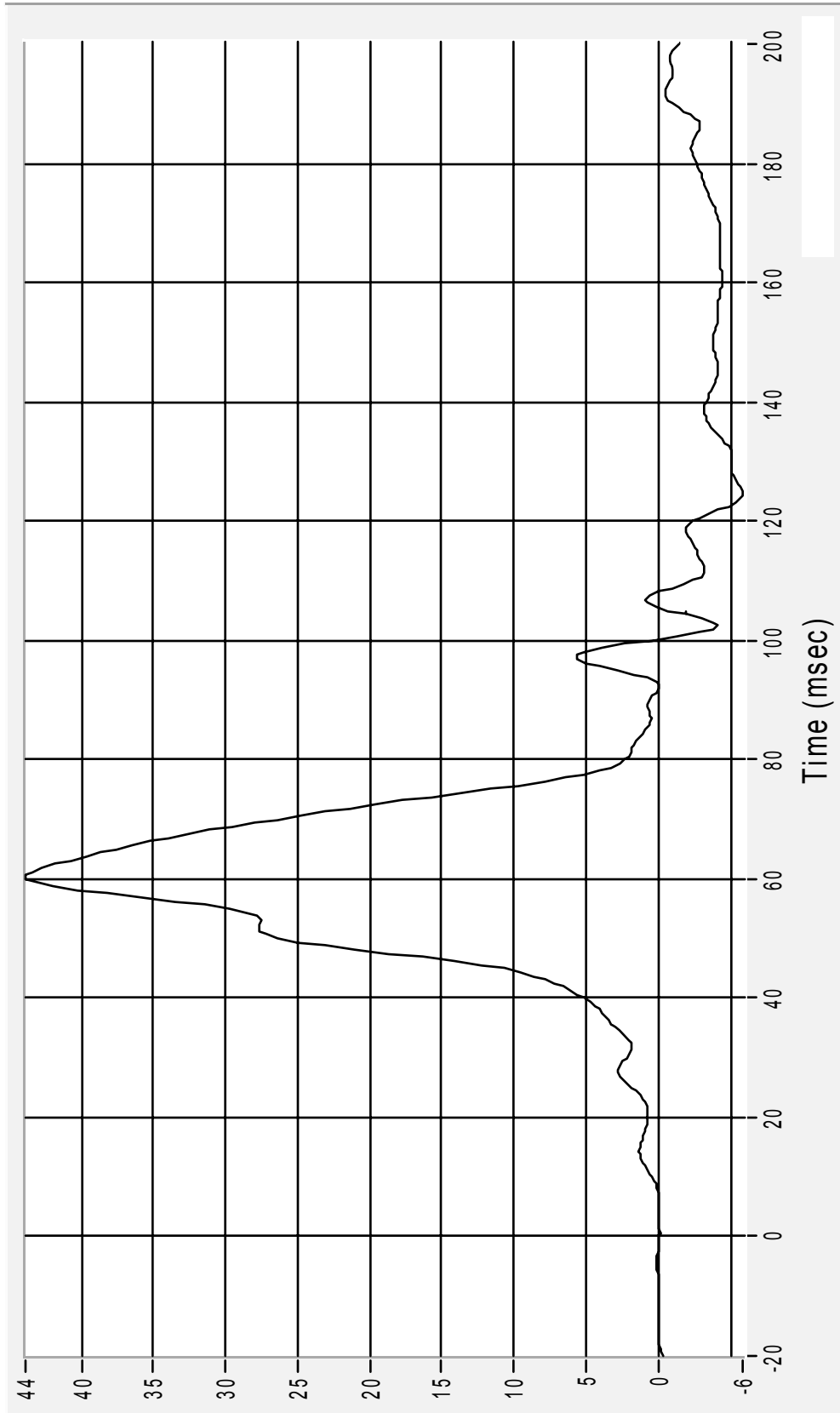


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Passenger Lower Spine (Y) Acceleration
 Acceleration (G's) FIR100 Max 43.9 G at 60.6 msec
 Min -5.9 G at 124.4 msec

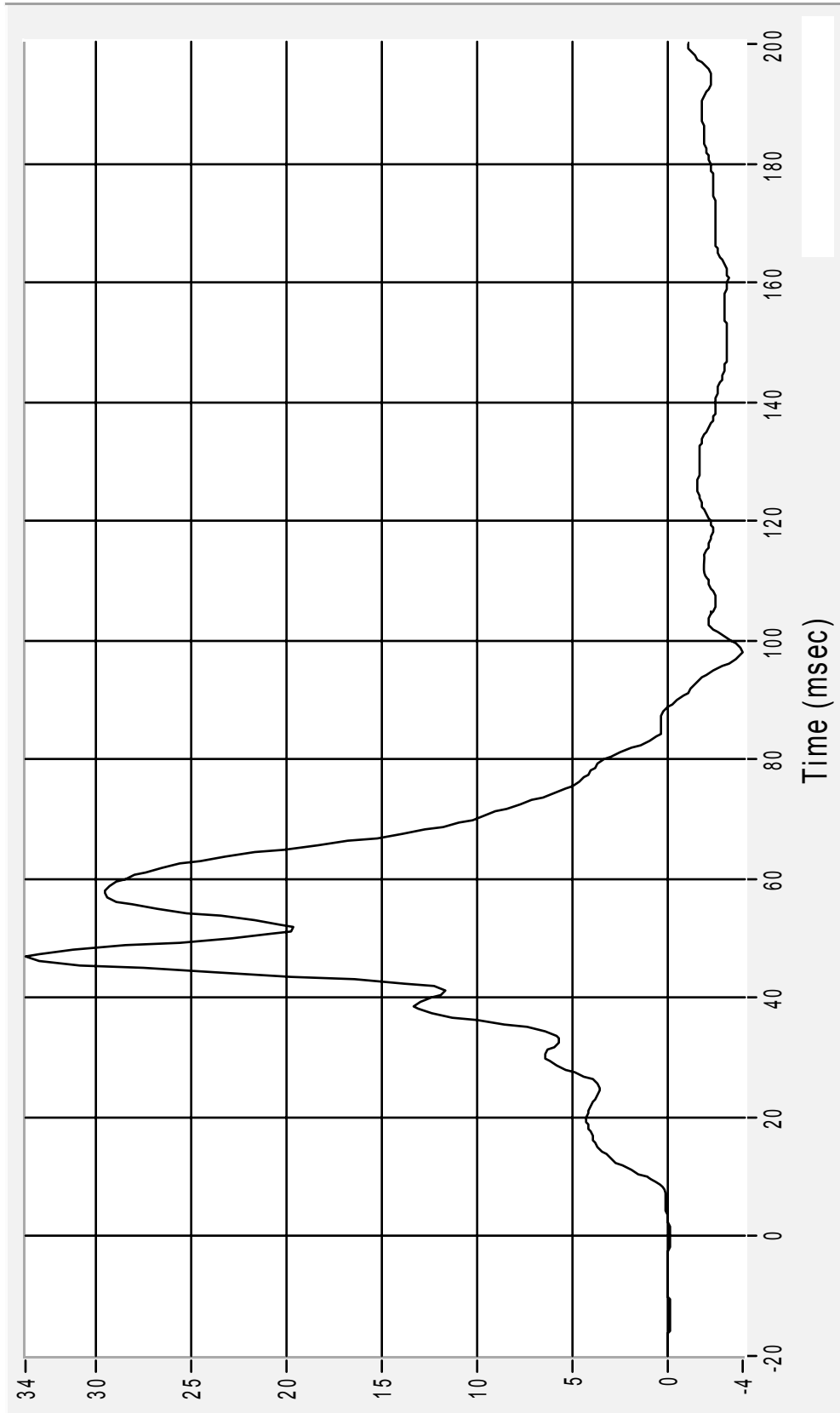


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Passenger Pelvic (Y) Acceleration
 Acceleration (G's) FIR100

Max	33.7	G	at	46.9	msec
Min	-3.9	G	at	98.1	msec



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APPENDIX C
DUMMY CALIBRATION DATA

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

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial Number 056Test Sequences 2 and 3

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 058Test Sequences 2 and 3

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/056		SID HIII/058	
		PRE	POST	PRE	POST
MEASUREMENTS					
Date	-	22Oct09	16Nov09	02Nov09	16Nov09
Sequential Test Number	-	2	3	2	3
Temperature (°C)	18.9-25.5	23.3	23.3	20.7	23.8
Relative Humidity (%)	10-70	35.2	25.9	33.0	26.2
SH – Seated Height (mm)	889-909	908	904	908	906
RH – Rib Height (mm)	501-521	518	505	518	515
HP – Hip Pivot Height (mm)	99	99/99	99/99	99/99	99/99
RD – Rib From Back Line (mm)	229-241	230	230	231	234
KH – Knee Pivot from Back Line (mm)	511-526	515/520	520/520	520/515	525/520
KV – Knee Pivot to Floor (mm)	490-505	495/490	500/500	505/495	500/500
HW – Hip Width (mm)	356-391	360	358	356	356
THORAX IMPACTS					
Date	-	22Oct09	16Nov09	02Nov09	16Nov09
Sequential Test Number	-	2	3	2	3
Temperature (°C)	18.9-25.5	23.5	23.3	21.4	23.3
Relative Humidity (%)	10-70	30.1	26.4	38.7	27.1
Probe Speed (m/s)	4.21-4.33	4.28	4.28	4.27	4.25
Upper Rib Acceleration (G)	37-46	38.3	41.2	40.4	44.3
Lower Rib Acceleration (G)	37-46	37.3	39.6	39.8	42.6
Lower Spine Acceleration (G)	15-22	19.7	20.8	21.0	22.0
PELVIS IMPACTS					
Date	-	22Oct09	16Nov09	02Nov09	16Nov09
Sequential Test Number	-	2	3	2	3
Temperature (°C)	18.9-25.5	23.5	23.3	21.5	23.3
Relative Humidity (%)	10-70	28.6	26.4	38.9	27.1
Probe Speed (m/s)	4.21-4.33	4.27	4.27	4.27	4.27
Pelvis Acceleration (G)	40-60	43.6	46.9	46.0	43.1
THORACIC SHOCK ABSORBER					
Shock Absorber ID Number	-	A1/2X2-1746	A1/2X2-1746	03130164	03130164
Damper Setting	1-10	5.75	5.75	5	5
Date	-	08Aug09	16Nov09	10Aug09	13Nov09
Sequential Test Number	-	1	2	1	2
Temperature	18.9-25.5	21.6	22.5	21.6	23.3
Relative Humidity	10-70	60.5	26.0	60.5	26.0
Probe Speed (m/s) Low	3.05	3.06	3.09	3.08	3.06
Force (N)	836 – 1125	979.2	920.1	886.8	877.3
Displacement (mm)	30 – 35	30.1	30.9	31.1	30.6
Probe Speed (m/s) Middle	4.27	4.24	4.32	4.27	4.24
Force (N)	1730 – 2099	1731.5	1764.3	1777.0	1824.5
Displacement (mm)	32 – 37	33.5	34.9	33.9	33.7
Probe Speed (m/s) High	6.10	6.10	6.08	6.09	6.10
Force (N)	3741 – 4448	3846.9	3811.1	3839.8	4099.7
Displacement (mm)	33 - 40	36.7	37.4	36.5	35.3

TEST PARAMETER	SPEC	SID HIII/056		SID HIII/058	
		PRE	POST	PRE	POST
ABDOMINAL COMPRESSION					
Date	-	16Oct09	10Nov09	30Oct09	10Nov09
Sequential Test Number	-	2	3	2	3
Temperature (°C)	18.9-25.5	22.4	22.2	21.2	22.3
Relative Humidity (%)	10-70	26.4	27.5	51.4	27.8
Force at 13 mm (N)	104-162	131.6	131.7	139.4	136.8
Force at 19 mm (N)	163-221	196.1	189.4	206.8	193.5
Force at 25 mm (N)	222-280	271.6	259.1	265.3	253.5
Force at 33 mm (N)	325-391	387.8	362.9	364.9	348.9
LUMBAR FLEXION					
Date	-	16Oct09	11Nov09	30Oct09	11Nov09
Sequential Test Number	-	2	3	2	3
Temperature (°C)	18.9-25.5	22.2	21.7	21.3	22.0
Relative Humidity (%)	10-70	27.1	26.4	49.3	26.8
Force at 0° (N)	0-26.7	0	0	0	0
Force at 0° (N)	97.8-151.2	111.5	111.2	121.5	111.8
Force at 0° (N)	151.2-204.6	187.1	156.7	169.7	158.2
Force at 0° (N)	204.6-258	226.7	218.1	207.3	231.5
Return Angle	12° Maximum	4.4	5.8	6.3	7.1
HYBRID III LATERAL NECK					
Date	-	16Oct09	12Nov09	31Oct09	12Nov09
Sequential Test Number	-	2	3	2	3
Temperature (°C)	18.9-25.5	23.8	22.2	21.1	22.3
Relative Humidity (%)	10-70	28.7	27.5	37.0	29.2
Pendulum Speed (m/s)	6.89-7.13	7.01	7.03	7.01	7.08
Pendulum Pulse 10ms (m/s)	1.96-2.55	2.06	2.10	2.40	1.97
Pendulum Pulse 20ms (m/s)	4.12-5.10	4.68	4.48	5.06	4.41
Pendulum Pulse 30ms (m/s)	5.73-7.01	6.98	6.72	6.88	6.57
Pendulum Pulse 40 –70 ms (m/s)	6.27-7.64	6.94	7.15	6.83	7.39
Max Head rotation (deg)	66-82	74.7	74.6	80.1	78.6
Head angle crosses zero (ms)	58-67	61.8	58.5	66.7	63.4
Peak Moment (Nm)	73-88	85.6	87.5	87.7	83.9
Moment crosses zero (ms)	49-63	56.0	57.9	53.0	58.1
Max rotation wrt pk. moment (ms)	2-15	8.08	9.52	5.52	6.64
HYBRID III LATERAL HEAD DROP					
Date	-	16Oct09	10Nov09	30Oct09	16Nov09
Sequential Test Number	-	2	3	2	3
Temperature (°C)	18.9-25.5	22.3	22.3	21.3	22.3
Relative Humidity (%)	10-70	26.5	30.8	49.3	26.4
Resultant Max (G)	120-150	138.8	136.8	138.2	145.6
Longititudinal Max (G)	<15	4.84	5.74	5.54	7.56

**DUMMY INSPECTION LIST
PRE AND POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

		SID H3 056		SID H3 058	
		PRE	POST	PRE	POST
	Date	03Nov09	04Nov09	03Nov09	04Nov09
	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