

REPORT NUMBER: MCW-DOT-08SN04

**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

2008 TOYOTA SCION TC 3-DOOR HATCHBACK

NHTSA NUMBER: M85112

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FINAL REPORT

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Prepared by:_____

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 2008 Toyota Scion tC 3-door hatchback 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 27 September 2008. The impact velocity of the Moving Deformable Barrier (MDB) was 61.9 km/h, and the ambient temperature at the struck side of the vehicle was 20.9 °C. The target vehicle's maximum post test static crush was 265 mm at level .2 The test vehicle's occupant performance is as follows: <table border="1" data-bbox="154 1228 1485 1501"> <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>50.5</td> <td>52.8</td> </tr> <tr> <td>Left lower rib (LLR) acceleration</td> <td>G</td> <td>51.6</td> <td>50.5</td> </tr> <tr> <td>Lower spine (T₁₂) acceleration</td> <td>G</td> <td>62.2</td> <td>53.4</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td></td> <td>57</td> <td>53</td> </tr> <tr> <td>Pelvis (PEV) acceleration</td> <td>G</td> <td>55.8</td> <td>38.0</td> </tr> <tr> <td>HIC</td> <td></td> <td>125.0</td> <td>584.9</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.							<u>Units</u>	<u>DRIVER</u>	<u>PASS.</u>	Left upper rib (LUR) acceleration	G	50.5	52.8	Left lower rib (LLR) acceleration	G	51.6	50.5	Lower spine (T ₁₂) acceleration	G	62.2	53.4	Thoracic Trauma Index (TTI)		57	53	Pelvis (PEV) acceleration	G	55.8	38.0	HIC		125.0	584.9
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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'08 test program sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-03-D-42005. The purpose of this test was to evaluate side impact protection of a manufactured by Nissan Motor Company.

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 2008 Toyota Scion tC 3-door hatchback 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 1536.4 kg test vehicle was impacted by the 1360.8 kg MDB traveling at a speed of 62.0 km/h (measured inline with the guidance system.) The test was conducted at the Medical College of Wisconsin on 27 September 2007.

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 056 and 058 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

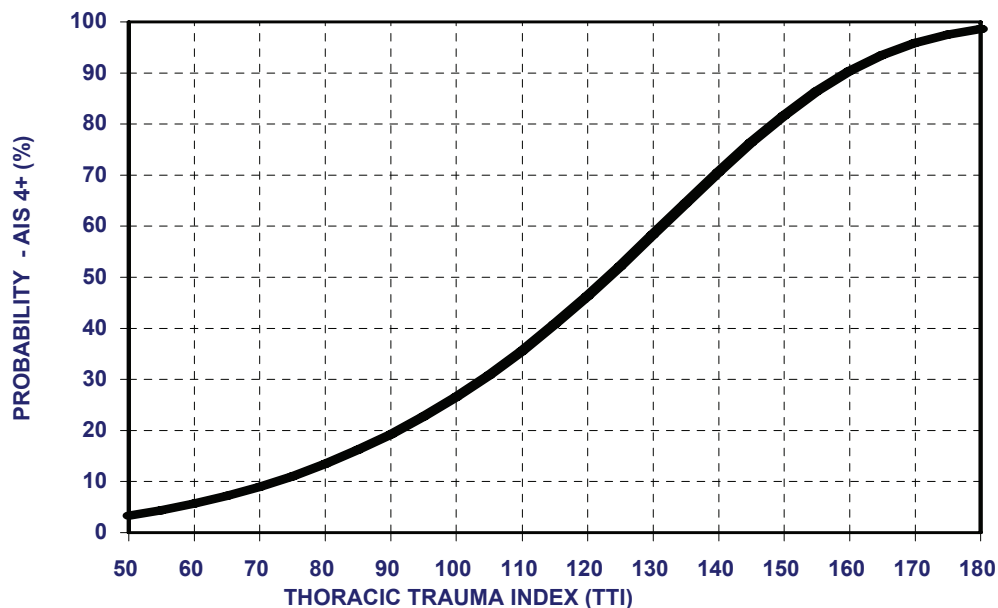
The test vehicle sustained a maximum static crush of 265 mm at level 2, 1350 mm rearward of the vertical impact line.

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	125.0	584.9
T1 (ms)	39.0	40.0
T2 (ms)	75.0	49.5
TTI	57	53
Maximum pelvic acceleration (G)	55.8	38.0

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	Yes	N/a

† Airbag deployed properly, but did not come between ATD and interior of door panel during impact

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	2008	Air conditioning	Yes
Make	Toyota	Anti-lock brakes	Yes
Model	Scion tC	AM/FM radio	Yes
Body style	3-door hatchback	All wheel drive	No
NHTSA number	M8 5112	Clock	Yes
MCW test ID	08SN04	Console	Yes
VIN	JTKDE167680236329	Cruise/speed control	Yes
Color	Waveline pearl	Disc brakes	Yes – front and rear
Build date	June 2007	Frontal bag	Yes
Engine No. of cylinders	4	Head bag	Yes – front and rear
Engine Displacement (L)	2.4	Power brakes	Yes
Engine Placement	Lateral	Power door locks	Yes
Transmission	Manual 5 speed	Power steering	Yes
Final drive	Front wheel drive	Power windows	Yes
Delivery date	September 13, 2007	Torso bag	Yes – front only
Odometer reading	51 miles	Tilt steering wheel	Yes

CERTIFICATION LABEL INFORMATION			
Manufacturer	Toyota Motor Corporation	GVWR (kg)	1793.2
		GAWR front(kg)	968.2
Date of manufacture	06/07	GAWR rear (kg)	834.1

SEAT INFORMATION			
	Number of occupants	Seat type	Seat back type
Front	2	Bucket	Adjustable
Back	3	Bench	Contoured
Third	0		
Total	5		

CARGO CAPACITY CALCULATION			
	Units	Value	Reference label
Vehicle maximum capacity	kg	393.2	(A)
Number of occupants (7) X 68.04 kg	kg	340.9	(B)
Cargo capacity (RCLW) †	kg	52.3	(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	411.2	435.9	437.7
Right front	kg	388.2	400.5	400.9
Left rear	kg	258.2	361.4	364.1
Right rear	kg	272.3	338.6	340.9
Total front	kg	799.4	836.4	838.6
% Total front	%	60.1	54.4	54.3
Total rear	kg	530.5	700.0	705.0
% Total rear	%	39.9	45.6	45.7
Total	kg	1329.9	1536.4	1543.6

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	1329.9	(D)
Maximum cargo capacity (RCLW)	kg	52.3	(C)
Mass of SID HIII's (1 or 2)	kg	161.4	(E)
Test vehicle target mass (TVTW)	kg	1543.6	(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)	None
Location	N/a
<u>Components removed from test vehicle</u> Non-struck front and rear door glasses, passenger interior door panel, interior trunk panels, windshield wipers, air cleaner, driver's side tail-light, radiator	

IMPACT LOCATION ON TEST VEHICLE	
Wheelbase	2700 mm
Nominal impact point	410 mm rearward of front axle
Actual impact point	410 mm rearward of front axle

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

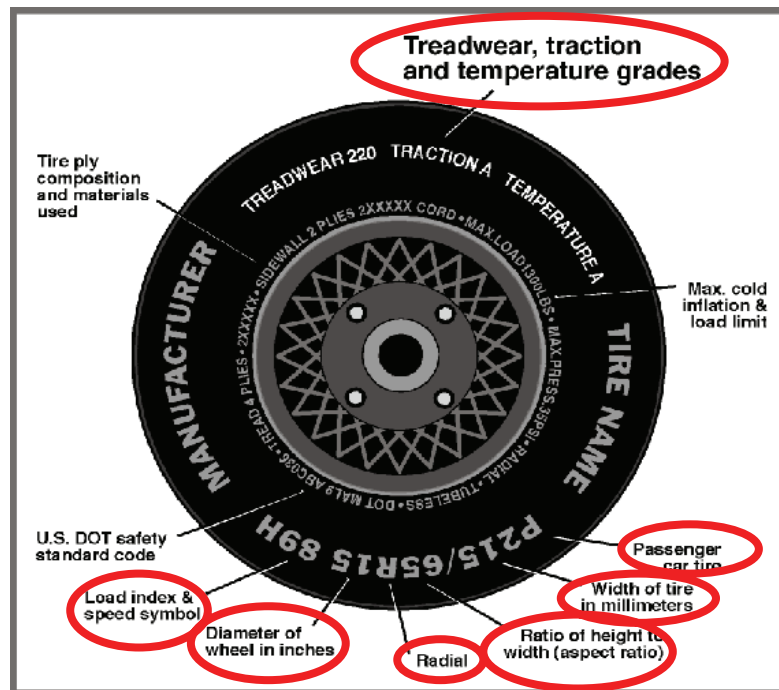
TEST VEHICLE ATTITUDES				
	Units	As delivered	As tested	Fully loaded
Left front	mm	694	688	686
Right front	mm	705	696	695
Left rear	mm	705	664	662
Right rear	mm	707	675	673
CG (X)	mm	1077.0	1230.1	1233.2

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

CG (X) measured rearward from front axle centerline

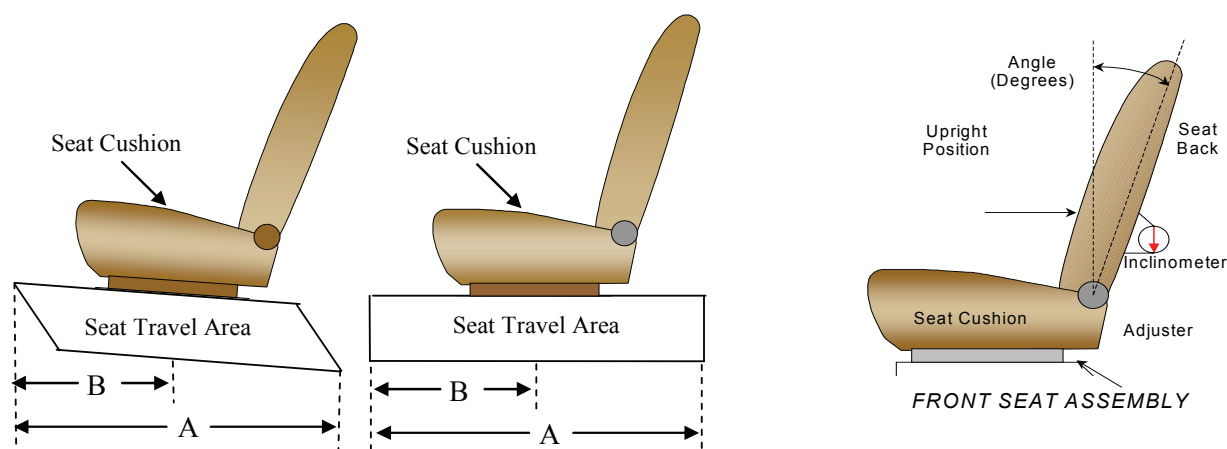
AUTOMATIC DOOR LOCK (ADL) INFORMATION				
	Left front	Left rear	Right front	Right rear
ADL present	No	No	No	No
ADL deactivated	N/a	N/a	N/a	N/a
Deactivation method	N/a			
Door lock status	Unlocked	Unlocked	Unlocked	Unlocked

DATA SHEET NO. 2
TEST VEHICLE TIRE INFORMATION



TIRE INFORMATION		
Measured Parameter	Front	Rear
Maximum tire pressure (kPa)	300	275
Cold / test pressure (kPa)	220	200
Recommended tire size	215/45ZR17	215/45ZR17
Tire size on vehicle	215/45ZR17	215/45ZR17
Tire manufacturer	Yokohama	Yokohama
Tire name	S32A	S32A
Tire type	Radial tubeless	Radial tubeless
Tire width (mm)	215	215
Ratio of height to width (aspect ratio)	45	45
Radial	Yes	Yes
Wheel diameter (inches)	17	17
Load index & speed symbol	M+S	M+S
Tread wear	160	160
Traction grade	A	A
Temperature grade	A	A

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	Fixed
Fore/aft total travel (mm)	270	N/a
Number of detents	17	N/a
Test position	9th notch from full forward; with first detent defined as no. 1	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	3.2°	Fixed - 18.2°
Test position	5th notch from full upright; with first detent in full upright position defined as no. 1	N/a

‡Full upright = notch 0

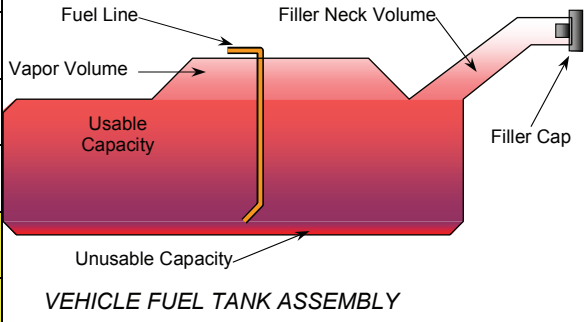
Seat belt position

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	No	No
Total travel (mm)	N/a	N/a
Test position	N/a	N/a

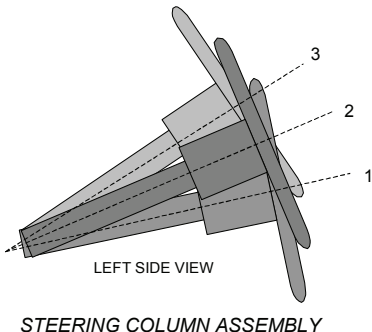
DATA SHEET NO. 3
TEST VEHICLE INFORMATION (CONTINUED)

Fuel tank information

STODDARD INFORMATION			
Description	Units	Value	
Usable capacity of standard equipment fuel tank	L	55.0	
Usable capacity of optional equipment fuel tank	L	0	
Usable capacity of vehicle used for certification testing to requirements	L	55.0	
Amount of stoddard added for test	L	51.2	
% 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.		

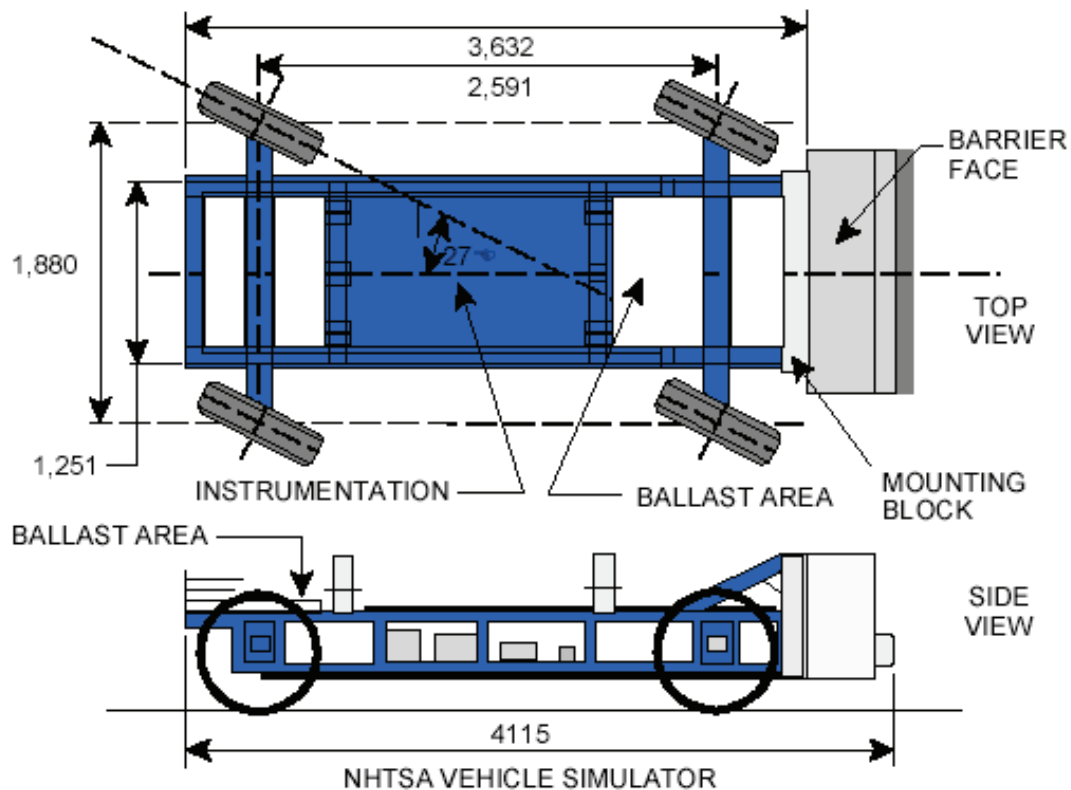
Steering wheel information

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	21.8°	
Steering wheel fore/aft travel	Fixed	
Number of detents	N/a	
Test position	Steering wheel positioned 19.9° relative to side sill panel.	

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

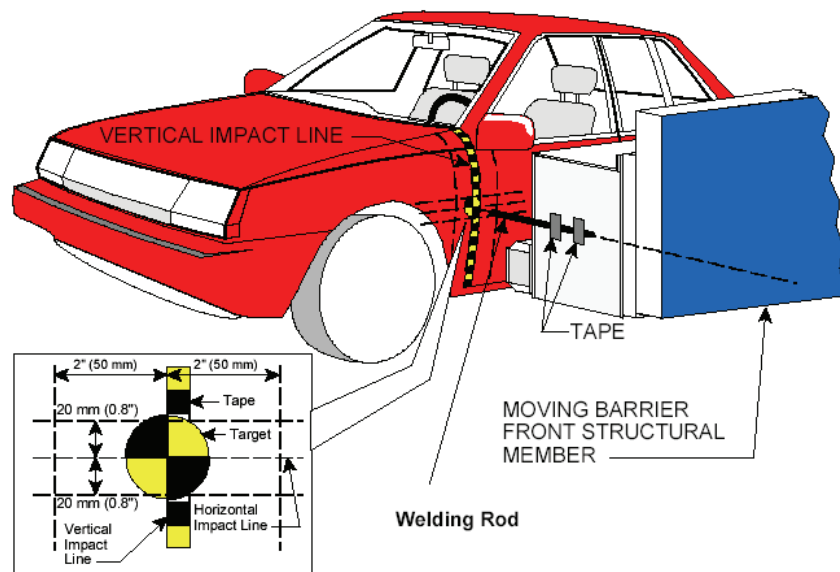
MDB SPECIFICATIONS				
	Units	Specification	Range	Value
Overall Width of Framework Carriage	mm	1251	1226-1276	1245
Overall Length w/Impactor Face	mm	4115	4090-4140	4101
Overall Length w/o Impactor Face	mm	3632	3607-3657	3617
Longitudinal Cg from Front Axle	mm	1123	1098-1148	1135
Track Width	mm	1880	1855-2005	1864
Mass	kg	1361	1356.5-1365.5	1360.8
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	605.0
Right front	kg	158.6
Left rear	kg	79.5
Right rear	kg	517.7
Total front	kg	763.6
% Total front	%	56.1
Total rear	kg	597.2
%Total rear	%	43.9
Total	kg	1360.8

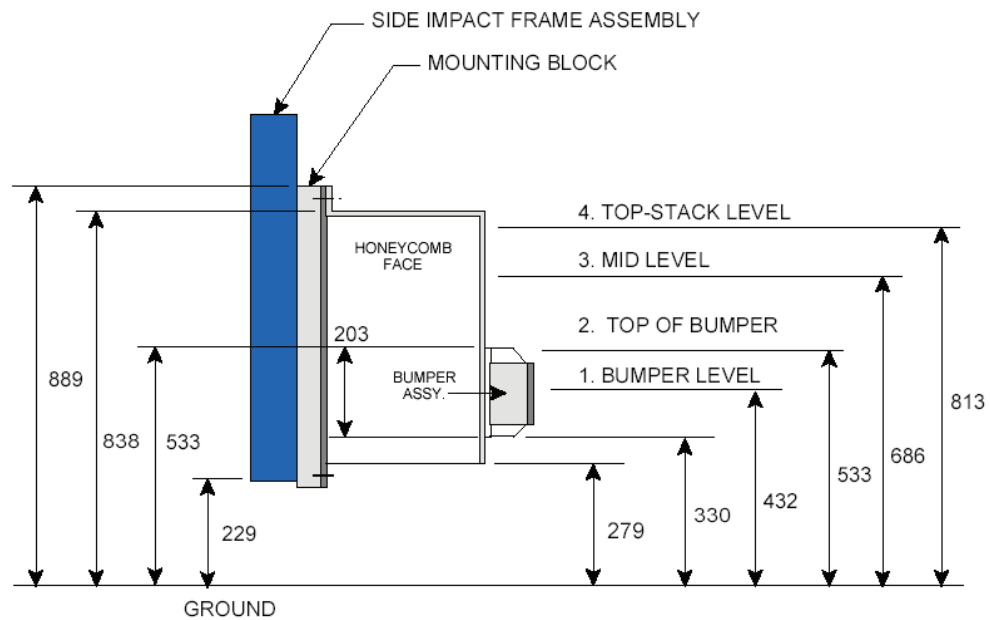
IMPACT SPEED				
	Units	Specification	Range	Value
Primary speed trap	kmh	61.9	61.1-62.7	62.0
Redundant speed trap	kmh	61.9	61.1-62.7	61.9



IMPACT POINT INFORMATION		
Vertical impact line is	410 mm rearward of front axle	
Actual impact is	410 mm rearward of front axle	
Measurement	Value	Tolerance
Impact point distance from vertical impact line	0 mm	+/- 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	278	279
Bottom of bumper	mm	330	327-333	329	331
Top of bumper	mm	533	530-536	534	536
Top of barrier	mm	838	835-841	835	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/056	SID HIII/058
Head contact	To side curtain airbag and top of head to side header	To roof rail below rear hatchback window
Upper torso contact	To left front door panel and outside of seat mounted side airbag	To left interior panel 145 mm below window sill
Lower torso contact	To left front door panel and outside of seat mounted side airbag	To left rear panel at armrest
Left leg contact	To left front door panel along bottom of armrest	To left interior panel 27 mm below armrest
Left knee contact	To left front door panel at bottom of armrest	To left B-pillar 330 mm below window sill

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION		
Description	Front	Rear
Locked/unlocked doors	Unlocked	N/a
Left side door opening	Closed/latched/inoperable	N/a
Right side door opening	Closed/latched/operable	N/a
Seat movement	~80 mm of seat crush	~106 mm of seat crush
Seat back failure	None	None

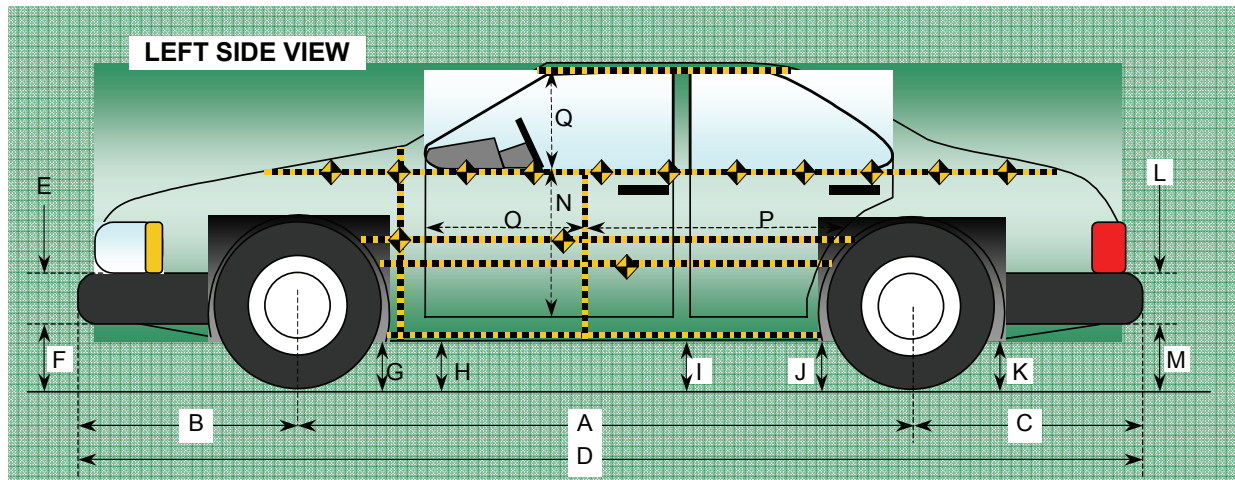
POST TEST STRUCTURAL OBSERVATIONS	
Critical areas of performance	Observations/conclusions
Pillar performance	B-pillar separation at rear passenger armrest
Sill separation	Max separation at center of wheelbase of 100 mm
Windshield damage	None
Window damage	Front and rear struck side windows shattered on impact
Other notable effects	None

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 - side header	Deployed	Yes - side header	Deployed
Seat belt pretensioner	Yes	Deployed	No	N/a
Seat belt load limiter	Yes	N/a	Yes	N/a

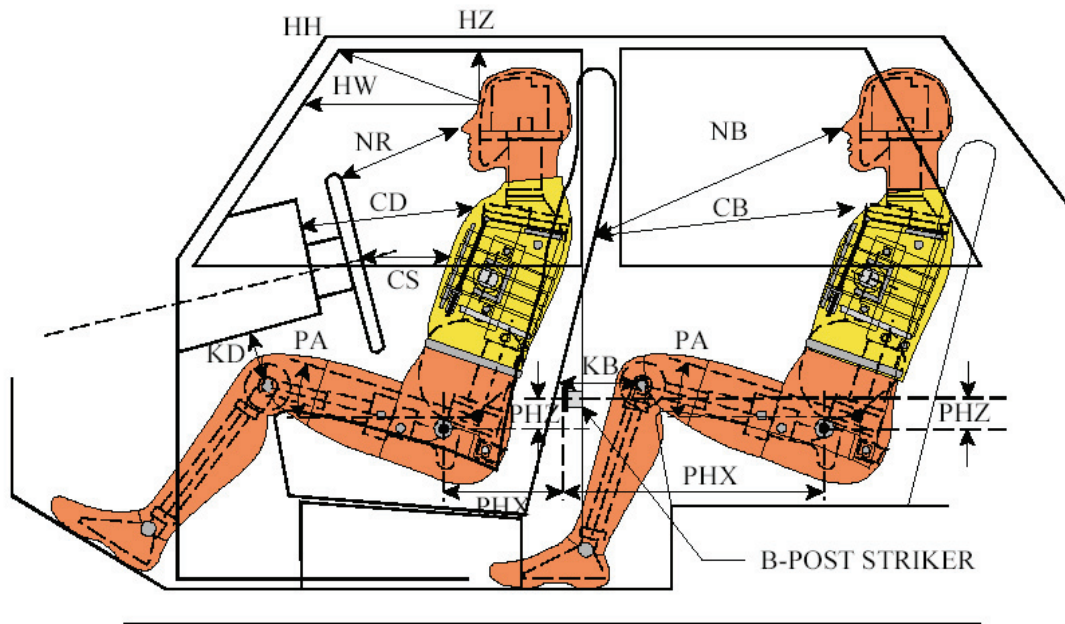
† Airbag deployed properly, but did not come between ATD and interior of door panel during impact

DATA SHEET NUMBER 6
VEHICLE PRE AND POST MEASUREMENTS



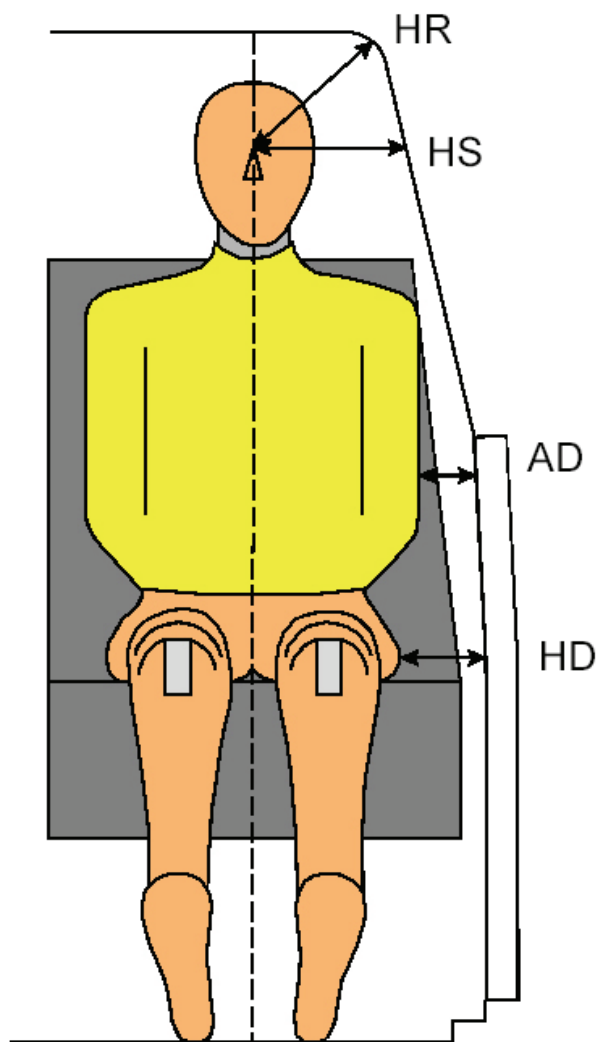
VEHICLE DIMENSIONS				
Code	Description	Pre test	Post test	Change
		mm	mm	mm
A	Wheelbase	2700	2666	-34
B	Front axle to front side of vehicle	614	615	1
C	Rear axle to rear side of vehicle	640	653	13
D	Total length at centerline	4422	4423	1
E	Front bumper thickness	277	277	0
F	Front bumper bottom to ground	243	254	11
G	Sill height at front wheel well	216	205	-11
H	Sill height at front door leading edge	212	206	-6
I	Sill height at b-pillar	241	254	13
J1	Sill height at rear wheel well	188	160	-28
J2	Pinch weld height at rear wheel well	212	232	20
K	Sill height aft of rear wheel well	351	292	-59
L	Rear bumper thickness	244	244	0
M	Rear bumper bottom to ground	384	327	-57
N	Sill height to window bottom sill	695	590	-105
O	Front door leading edge to impact C/L	1320	1293	-27
P	Rear door trailing edge to impact C/L	877	836	-41
Q	Front window opening	390	390	0
R	Right side length	3954	3960	6
S	Left side length	3954	3934	-20
T	Vehicle width at b-pillar	1742	1538	-204

DATA SHEET NUMBER 7
SID HIII LONGITUDINAL CLEARANCES



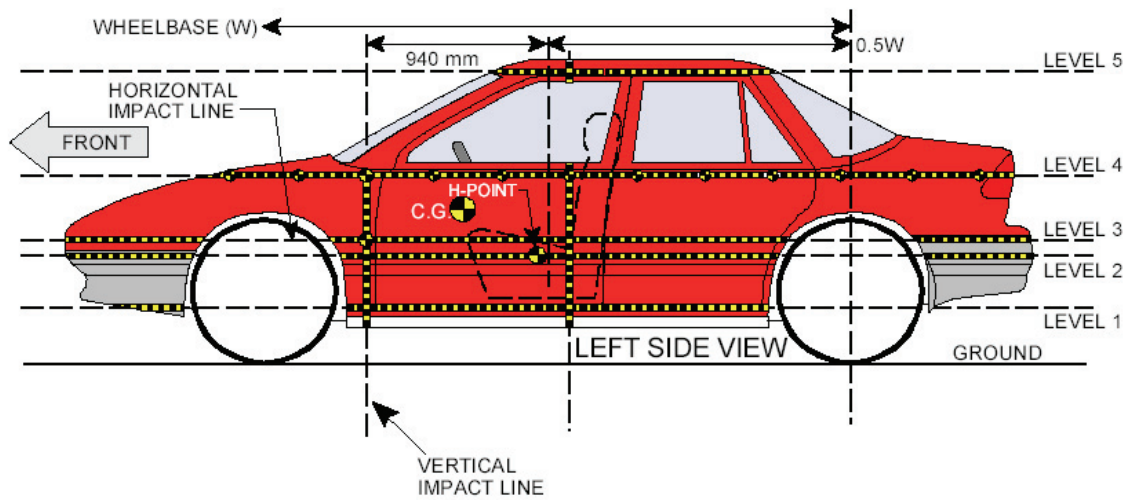
SID HIII LONGITUDINAL CLEARANCE MEASUREMENTS					
Driver code	Pass. code	Measurement description	Units	Left front seat	Left rear seat
		ATD serial number	-	056	058
HH	-	Head to header	mm	370	N/a
HW	-	Head to windshield	mm	682	N/a
HZ	HZ	Head to roof	mm	153	125
NR	NB	Nose to rim/nose to seatback	mm	410	626
CD	CB	Chest to dash or seatback	mm	504	590
CS	-	Chest to steering wheel	mm	314	N/a
KDL	KBL	Left knee to dash or seatback length	mm	176	231
KDA	KBA	Left knee to dash or seatback angle	°	16.4	40.4
KDR	KBR	Right Knee to dash or seatback length	mm	165	238
KDA	KDA	Right knee to dash or seatback angle	°	18.1	40.2
PA	PA	Pelvic angle	°	23.1	23.1
PHX	PHX	H-Point to striker (x-axis)	mm	507	-388
PHZ	PHZ	H-Point to striker (z-axis)	mm	253	228

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	-	056	058
HR	Head to side header	mm	192	131
HS	Head to side window	mm	325	150
-	Shoulder to door	mm	94	75
HD	H-point to door	mm	153	146

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	1318	15	300
4	Window sill	937	116	1500
3	Mid-door	606	243	1500
2	Driver H-point	462	265	1350
1	Axle centerline or sill top	257	17	1650
Maximum static crush		265 mm at level 2 1350 mm rearward from vertical impact line		

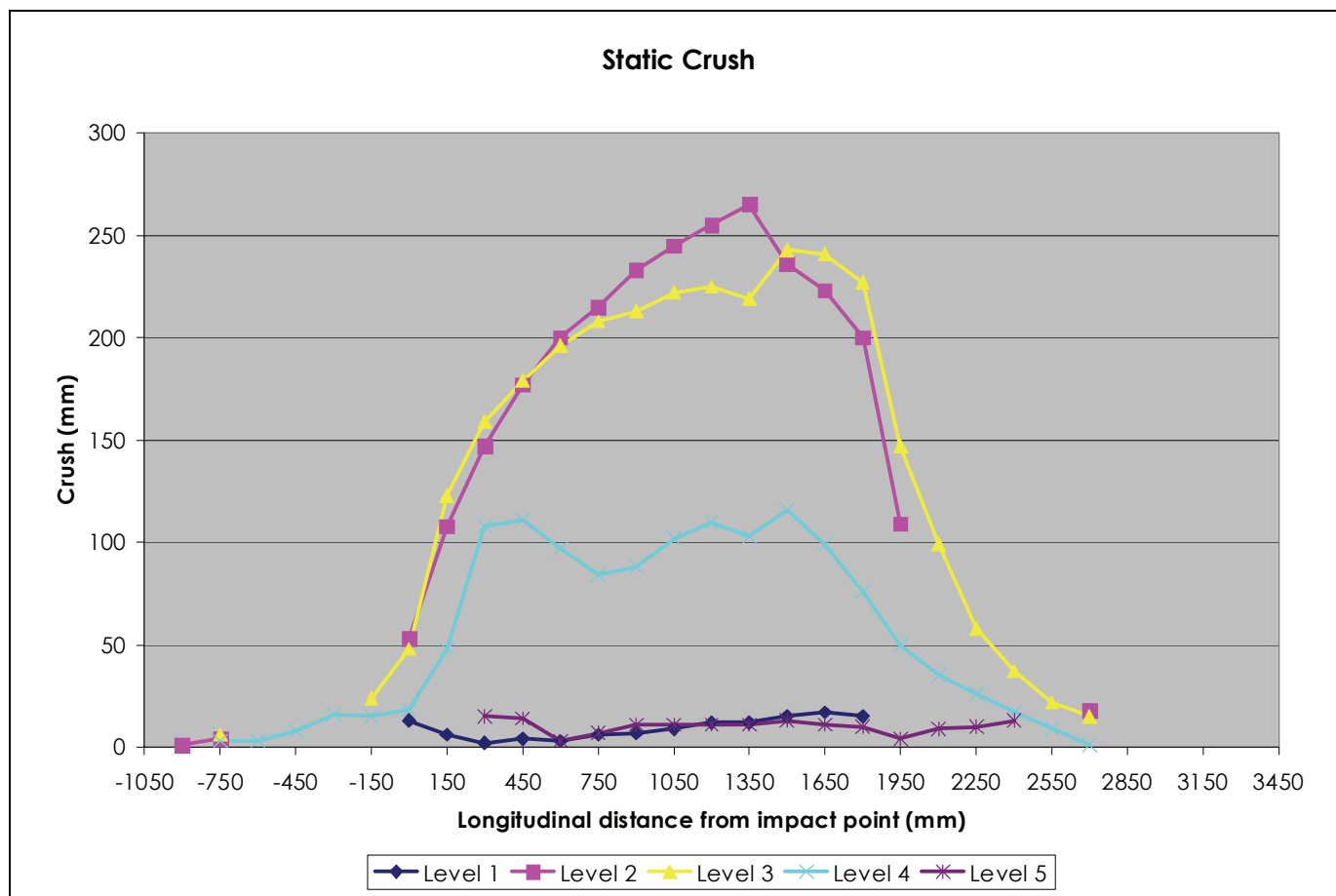
Height measurements taken 750 mm rearward from vertical impact line.

DATA SHEET 10
VEHICLE STATIC CRUSH PROFILE

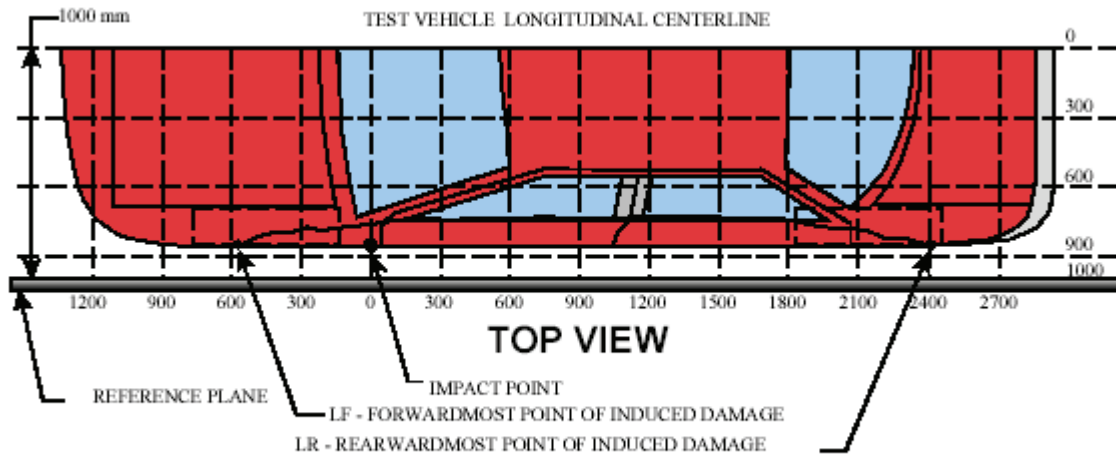
Note: All dimensions are in millimeters with a tolerance of ± 3 mm

TEST VEHICLE STATIC CRUSH																
Level		1			2			3			4			5		
Height		257			462			606			937			1318		
		Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush
DISTANCE IN MILLIMETERS (mm) FROM IMPACT POINT	-1050															
	-900				256	257	1									
	-750				209	213	4	213	219	6	340	343	3			
	-600										322	325	3			
	-450										307	315	8			
	-300										298	314	16			
	-150							186	210	24	289	304	15			
	0	217	230	13	196	249	53	196	244	48	284	302	18			
	150	213	219	6	209	317	108	201	324	123	277	325	48			
	300	209	211	2	208	355	147	199	358	159	276	384	108	411	426	15
	450	205	209	4	206	383	177	196	375	179	275	386	111	441	455	14
	600	202	205	3	203	403	200	194	390	196	273	370	97	473	476	3
	750	200	206	6	202	417	215	192	400	208	272	356	84	487	494	7
	900	198	205	7	200	433	233	193	406	213	272	360	88	494	505	11
	1050	198	207	9	200	445	245	193	415	222	273	375	102	498	509	11
	1200	198	210	12	200	455	255	193	418	225	275	385	110	499	510	11
	1350	200	212	12	200	465	265	193	412	219	276	379	103	499	510	11
	1500	202	217	15	201	437	236	195	438	243	279	395	116	498	511	13
	1650	206	223	17	202	425	223	197	438	241	283	382	99	497	508	11
	1800	209	224	15	200	400	200	200	427	227	289	365	76	493	503	10
	1950				186	295	109	195	342	147	294	344	50	486	490	4
	2100							183	282	99	299	334	35	468	477	9
	2250							180	238	58	308	334	26	454	464	10
	2400							183	220	37	317	334	17	440	453	13
	2550							203	225	22	328	337	9			
	2700				215	233	18	237	252	15	344	345	1			
	2850															
	3000															
		3150														
		3330														

DATA SHEET 10
VEHICLE STATIC CRUSH PROFILE (CONTINUED)

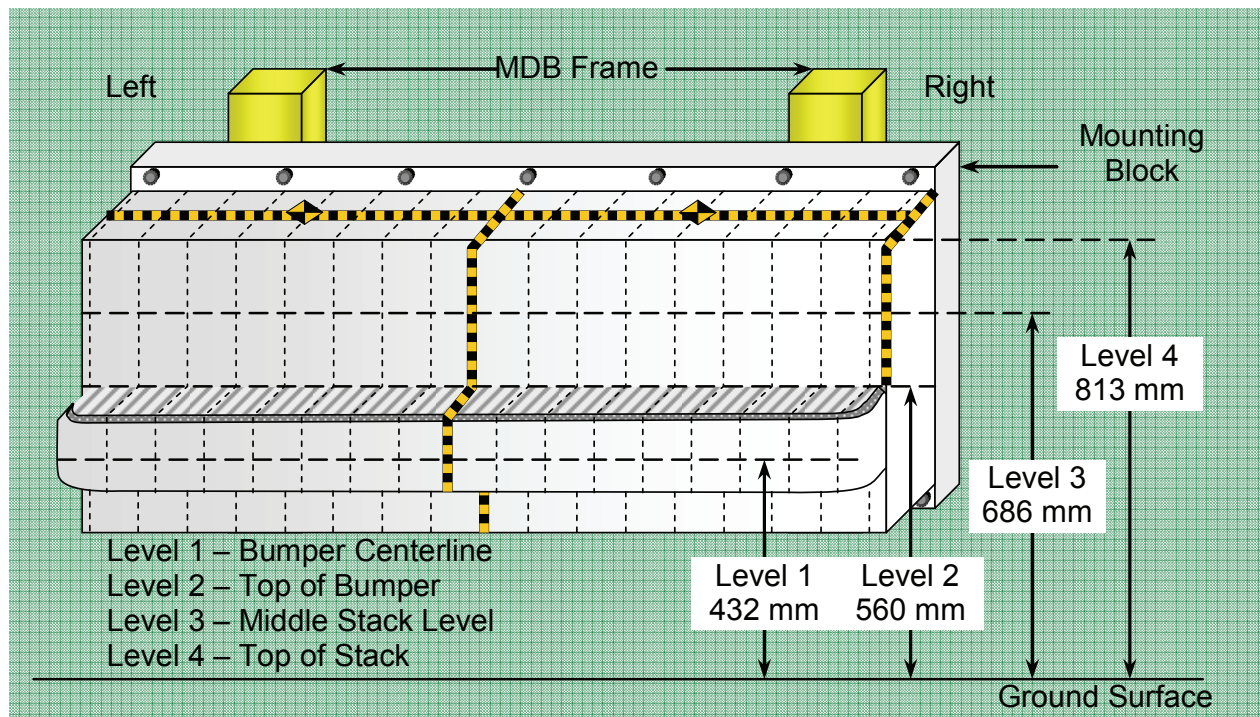


DATA SHEET 11
VEHICLE DAMAGE PROFILE DISTANCES (DPD)



DPD MEASUREMENTS				
	DPD measurement (mm)	Pre test (mm)	Post test (mm)	Crush (mm)
1	-150	208	208	0
2	360	209	373	164
3	870	209	434	225
4	1380	208	467	259
5	1890	208	293	85
6	2400	205	205	0

DATA SHEET 12
DEFORMABLE BARRIER STATIC CRUSH

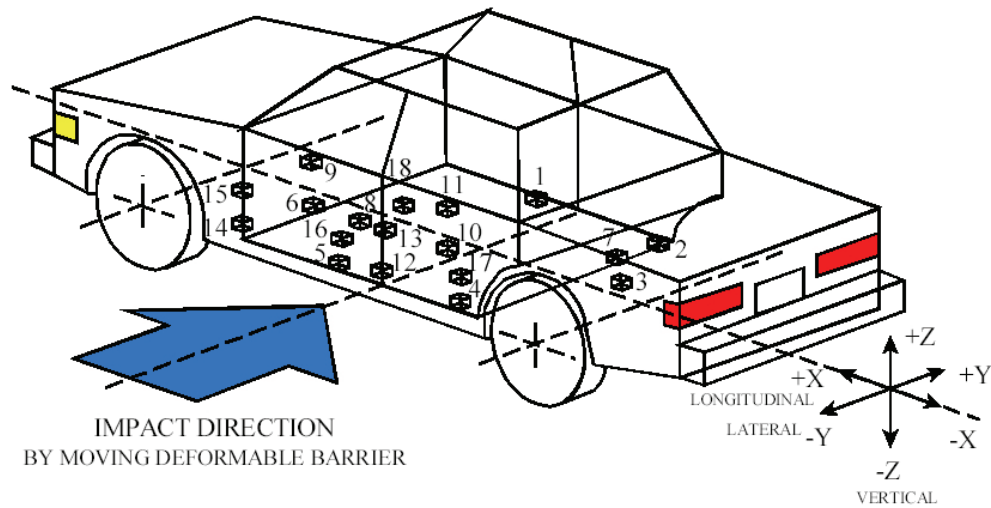


DEFORMABLE BARRIER FACE SUMMARY		
Barrier face manufacturer		Plascore
Serial number		A060716
Level	Description	Maximum crush
1	Center of bumper	216
2	Top of bumper	109
3	Middle of stack	115
4	Top of stack	139
Maximum post test intrusion is 216 mm at level 1		

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	100	74	63	77	122	118	72	39	34	35	39	38	40	42	53	84	139
3	89	66	65	85	115	93	59	34	24	19	20	22	26	32	39	54	113
2	109	99	90	86	84	78	68	59	52	52	53	52	52	44	53	71	84
1	216	212	204	203	185	170	162	149	142	136	128	124	120	116	115	123	141

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	2421	704	413
2	Right sill at rear seat	1408	700	410
3	Rear floor pan above axle	833	12	124
4	Left sill at rear door	1410	-708	390
5	Left sill at front door	2417	-706	397
6	Left front door C/L	†	†	†
7	Rear occupant compartment	1686	488	232
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	1824	-698	135
13	Left middle b-pillar	1748	-704	-91
14	Left lower a-pillar	3008	-780	113
15	Left middle a-pillar	3003	-781	-94
16	Front seat track	2283	-603	340
17	Rear seat track or structure	1642	-418	305
18	Vehicle CG	2366	-39	135

Origin

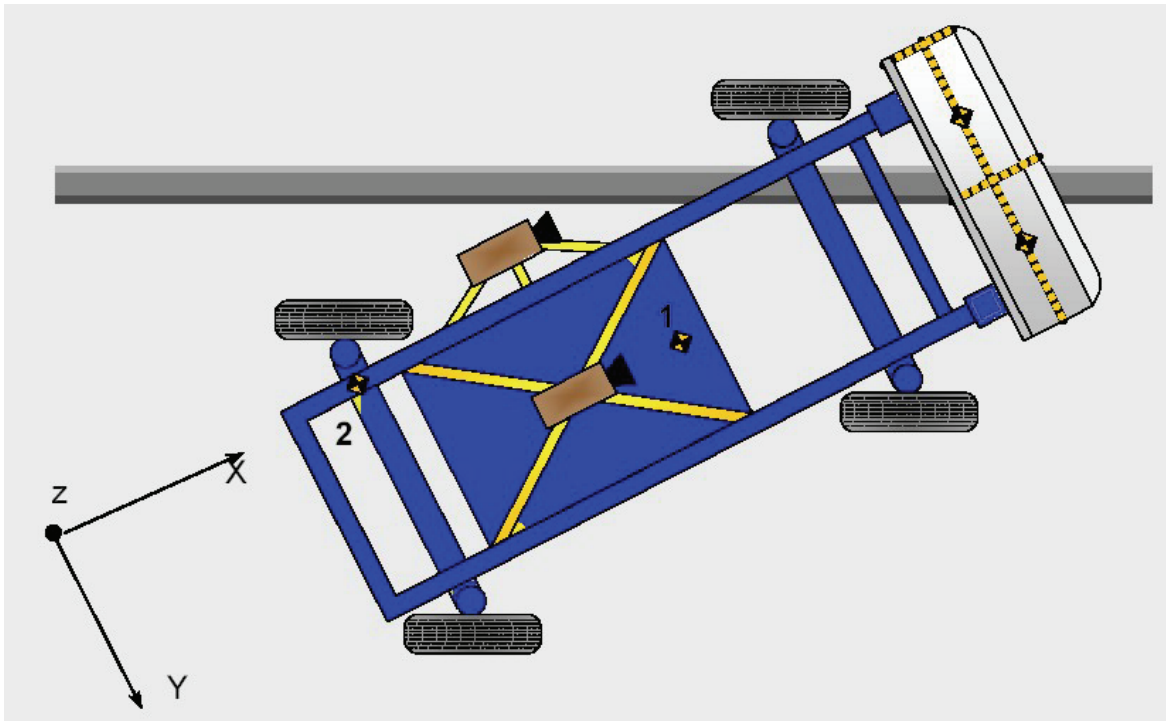
X Rear bumper
Y Midline of vehicle
Z Top of rear bumper

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



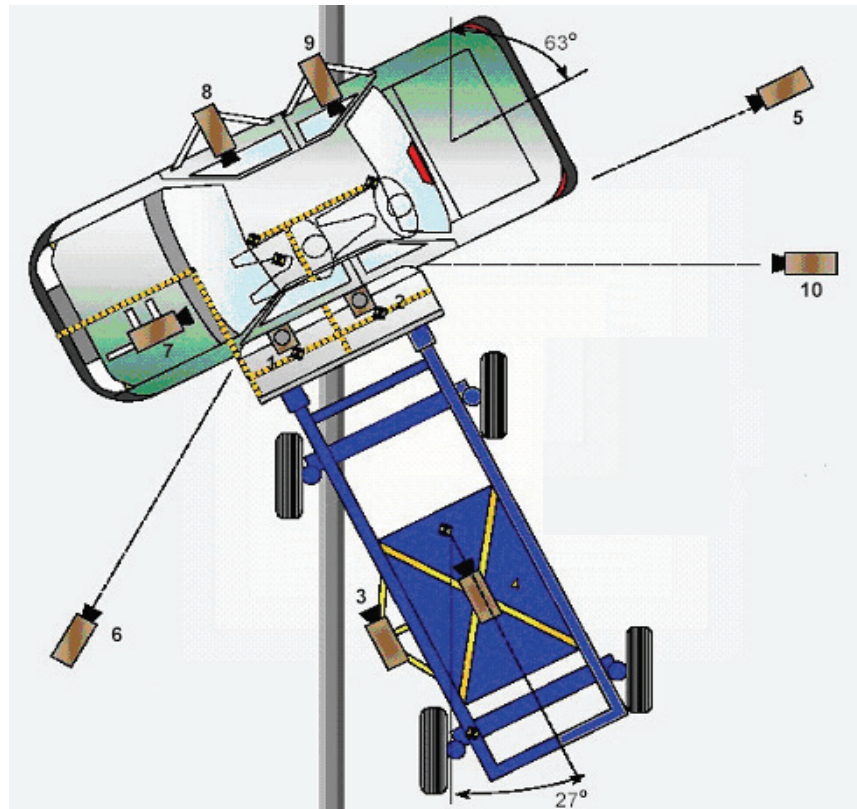
MDB ACCELEROMETER LOCATIONS			
Location	Measurements (mm)		
	X	Y	Z
Center of gravity	1113	-1	311
Right rear	2812	-614	585

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	-250	-641	-4867	90	12.5	1000
2	Overhead close-up view of impact plane	-551	-126	-4395	90	16	1000
3	MDB onboard close-up view of impact point †	-2260	-78	-17	0.9	25.4	1000
4	MDB onboard view of driver dummy †	-2060	837	-668	3.8	13	1000
5	Right side ground level overall view	-578	11986	-953	5.1	50	1000
6	Left side ground level overall view	-1730	-3801	-942	10.9	25	1000
7	Test vehicle onboard driver front view	465	-380	-400	11.3	25	1000
8	Test vehicle onboard driver side view	1520	-850	-310	14.0	12.5	1000
9	Test vehicle onboard passenger side view	1519	-1655	-321	14.7	12.5	1000
10	Real-time film coverage of test	-	-	-	-	-	-

Origin

X

Y

Z

Impact Point

Impact Point

Impact Point

† Cameras triggered pre-impact

Orientation

X

Y

Z

+(X) Forward

+(Y) Right

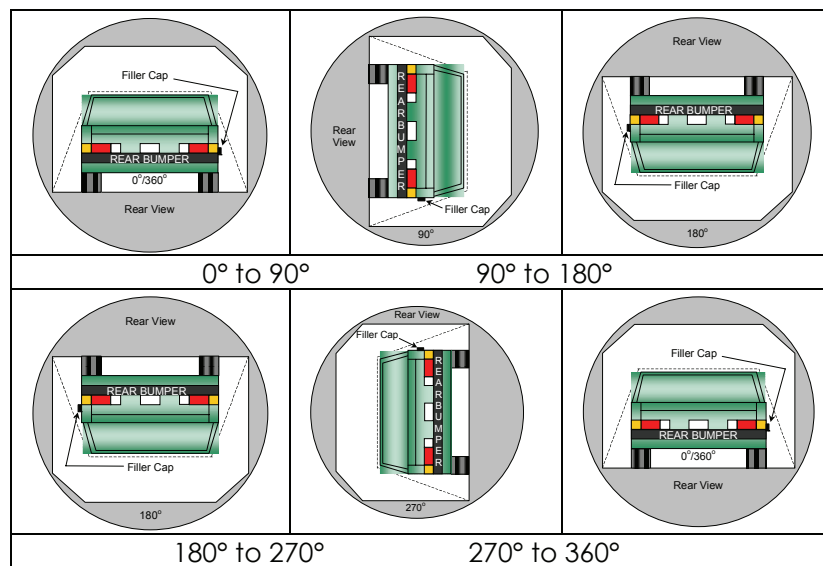
+(Z) Down

DATA SHEET 16
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 20.9° CTest Time: 8:15 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°	64	304	368
90° to 180°	65	300	365
180° to 270°	67	300	367
270° to 360°	66	300	366

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-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-25	Pre test impact point	A-16
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A-27	Pre test front $\frac{3}{4}$ view of left side doors	A-17
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A-45	Pre test passenger, right side view	A-26
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Figure	Photograph Description	Page
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A-50	Post test front view of MDB barrier face	A-28
A-51	Pre test overhead view of MDB barrier face	A-29
A-52	Post test overhead view of MDB barrier face	A-29
A-53	Pre test right side view of MDB barrier face	A-30
A-54	Post test right side view of MDB barrier face	A-30
A-55	Pre test left side view of MDB barrier face	A-31
A-56	Post test left side view of MDB barrier face	A-31
A-57	FMVSS301 0 degrees	A-32
A-58	FMVSS301 90 degrees	A-32
A-59	FMVSS301 180 degrees	A-33
A-60	FMVSS301 270 degrees	A-33
A-61	FMVSS301 360 degrees	A-34
A-62	Impact	A-34



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

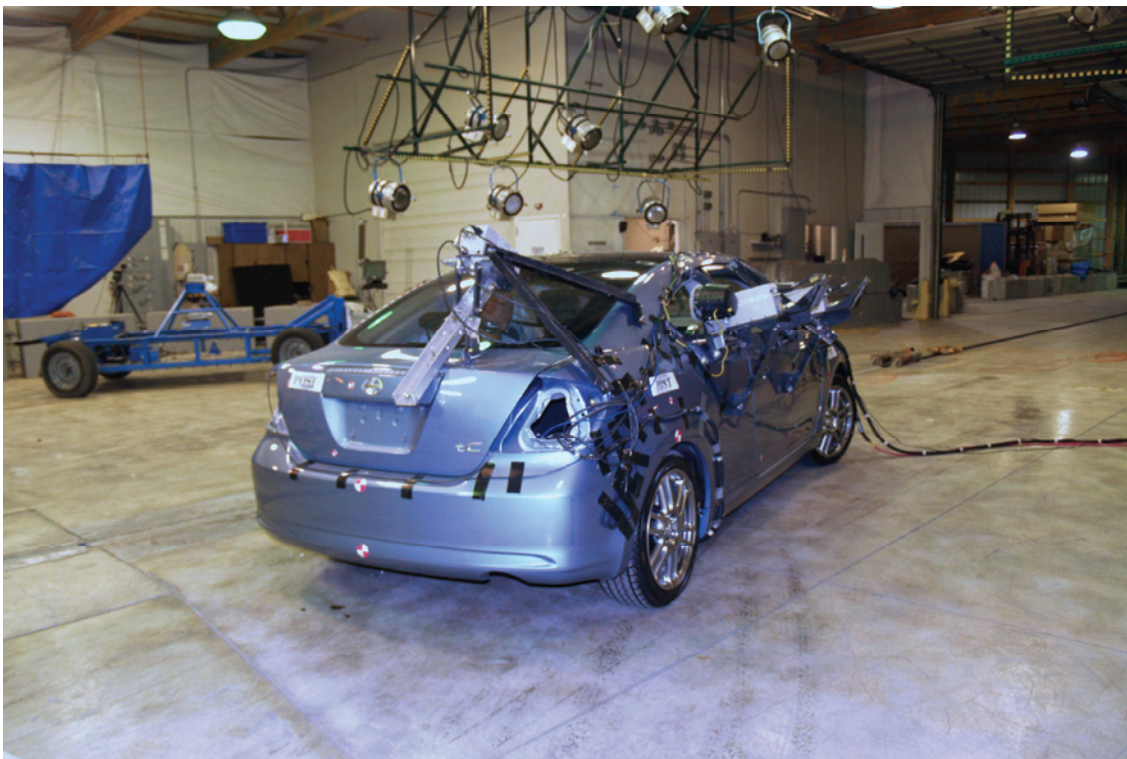


Figure A-16: Post test right rear 3/4 view of test vehicle



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

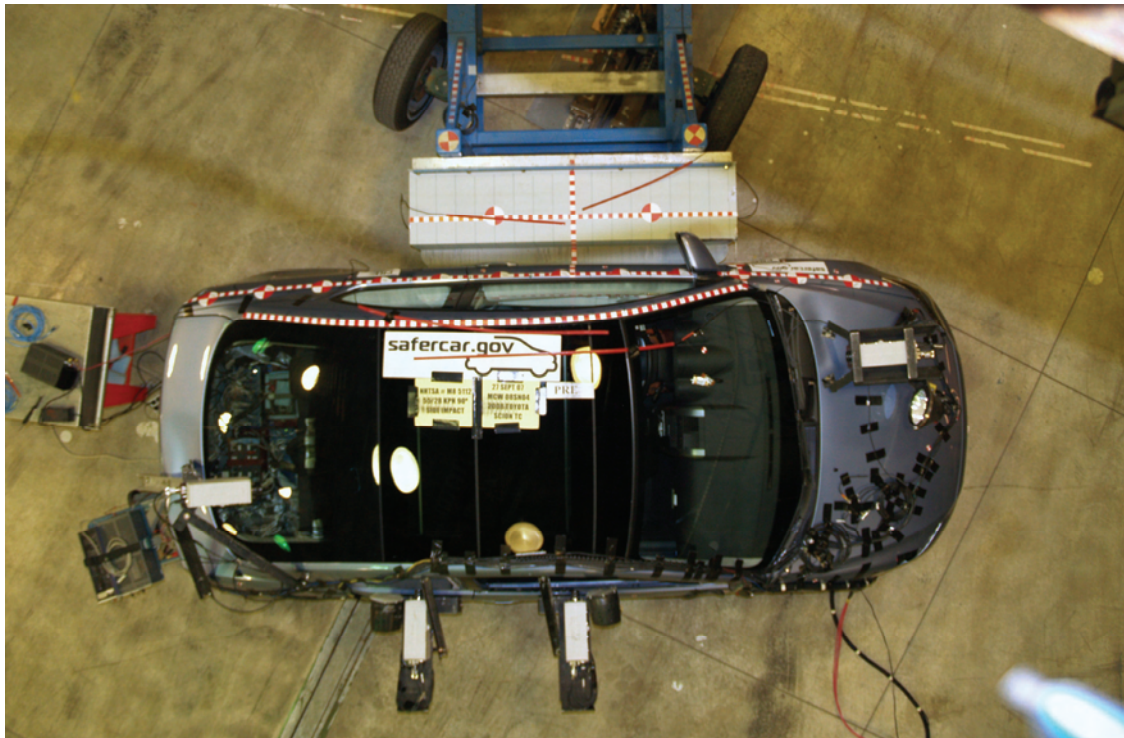


Figure A-21: Pre test overhead view

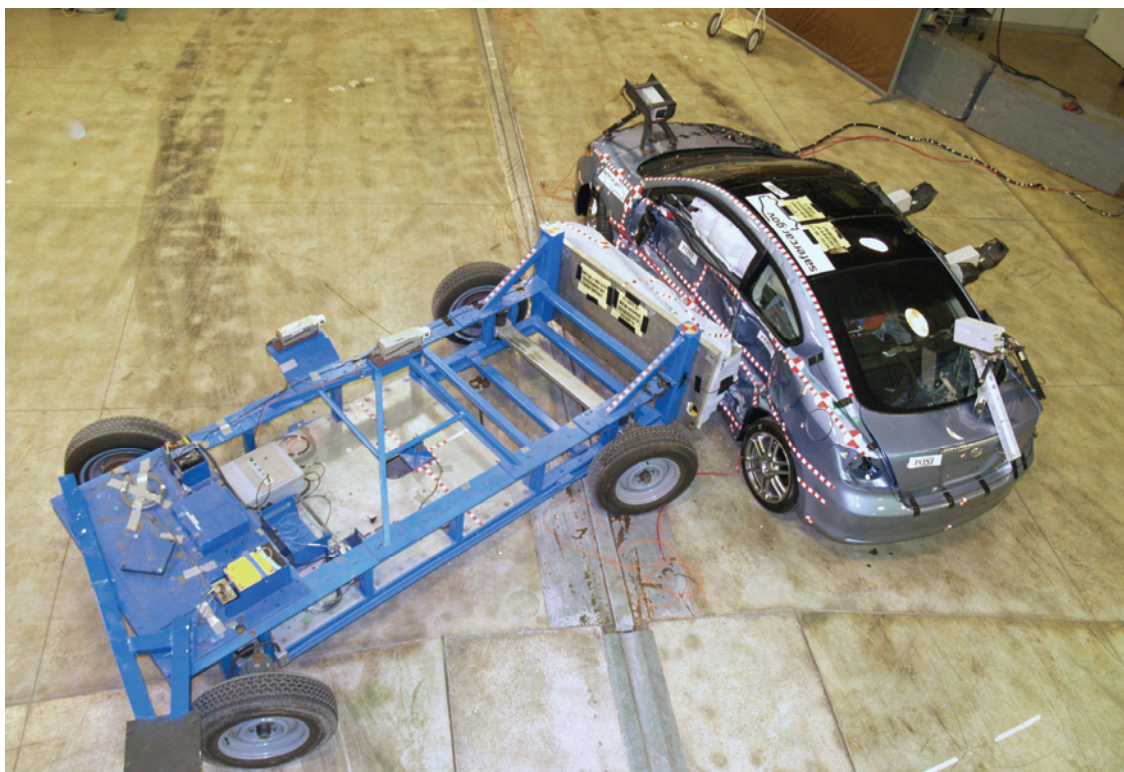


Figure A-22: Post test overhead view



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

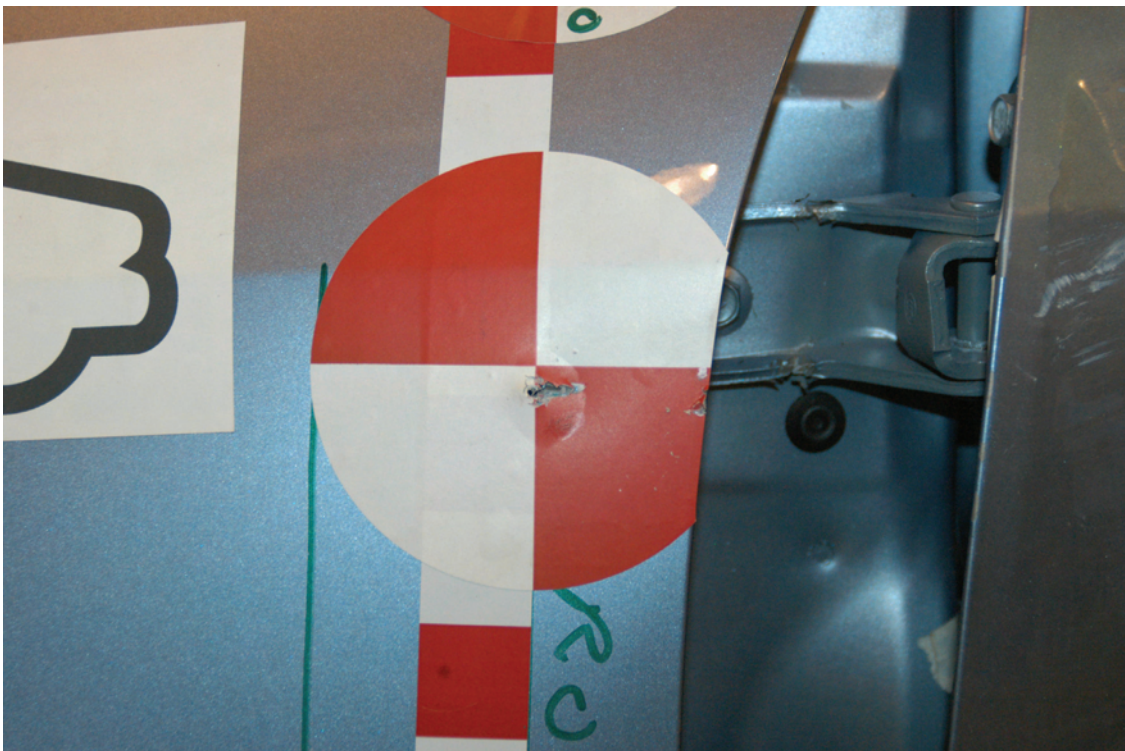


Figure A-26: Post test impact point



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 driver left side view



Figure A-34: Post test driver left side view



Figure A-35: Pre test driver shoulder clearance



Figure A-36: Post test driver shoulder clearance



Figure A-37: Pre test driver right side view



Figure A-38: Post test driver right side view



Figure A-39: Post test driver contact locations (1)



Figure A-40: Post test driver contact locations (2)



Figure A-41: Pre test passenger left side view



Figure A-42: Post test passenger left side view



Figure A-43: Pre test passenger shoulder clearance



Figure A-44: Post test passenger shoulder clearance



Figure A-45: Pre test passenger right side view



Figure A-46: Post test passenger right side view



Figure A-47: Post test passenger contact locations (1)



Figure A-48: Post test passenger contact locations (2)



Figure A-49: Pre test front view of MDB barrier face



Figure A-50: Post test front view of MDB barrier face



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

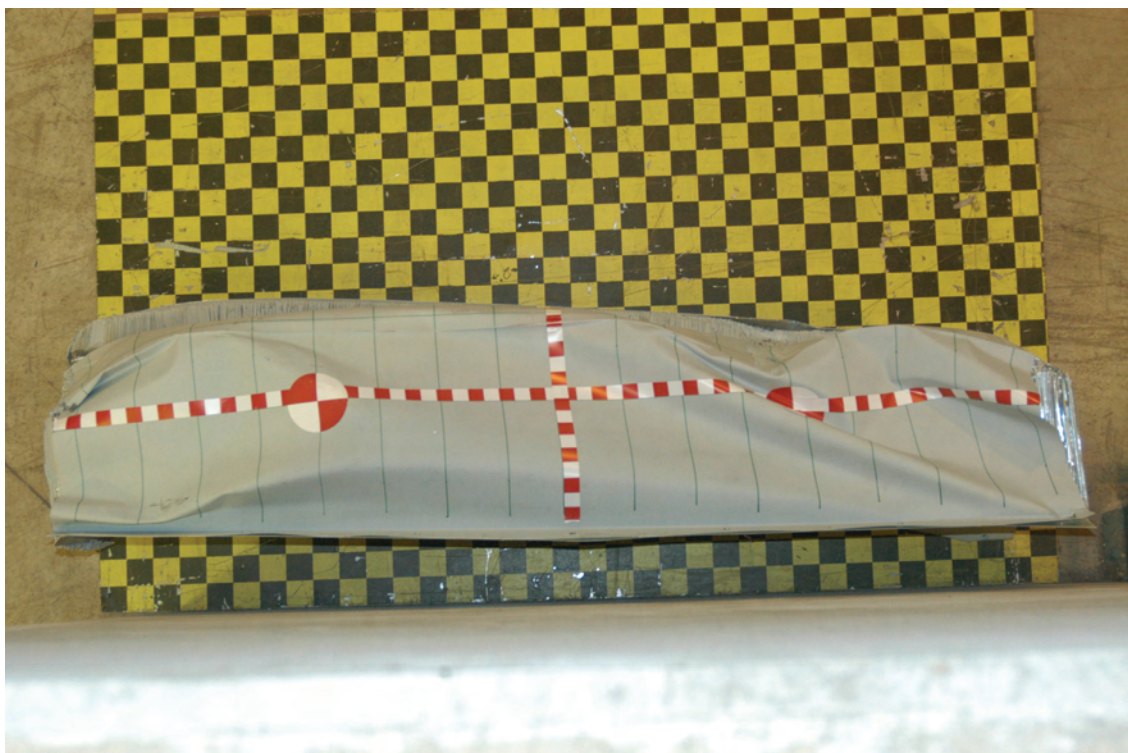


Figure A-52: Post test overhead view of MDB barrier face



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



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



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



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

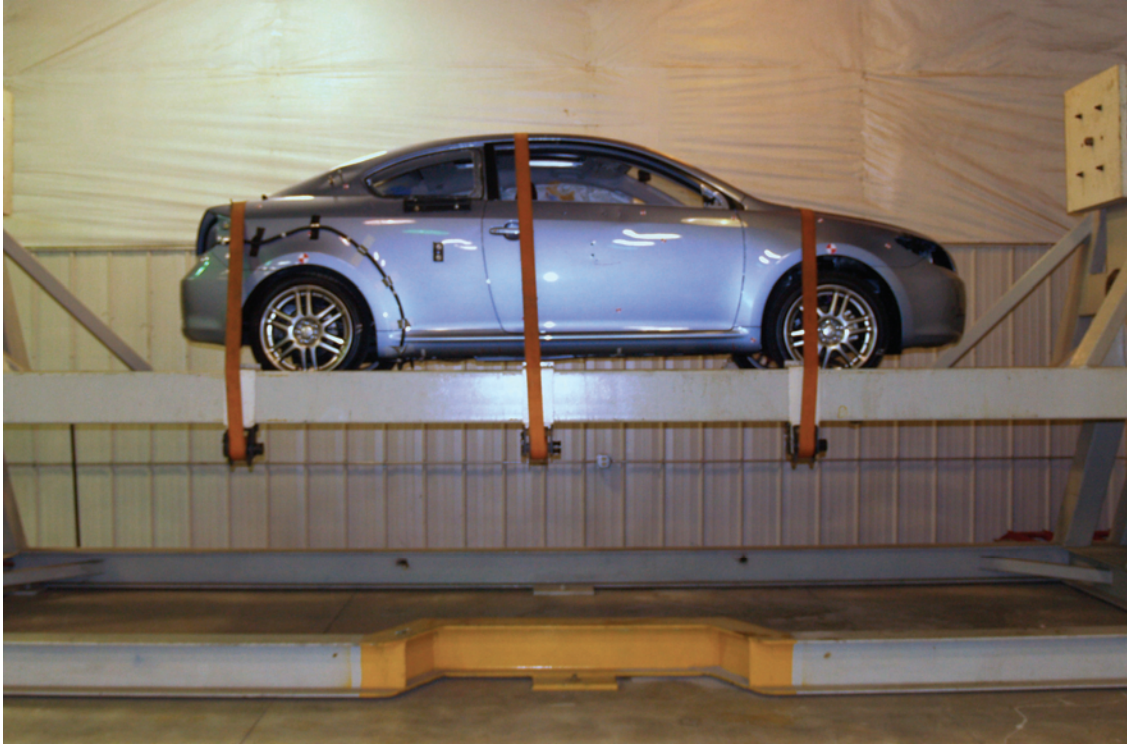


Figure A-57: FMVSS 301 0 degrees

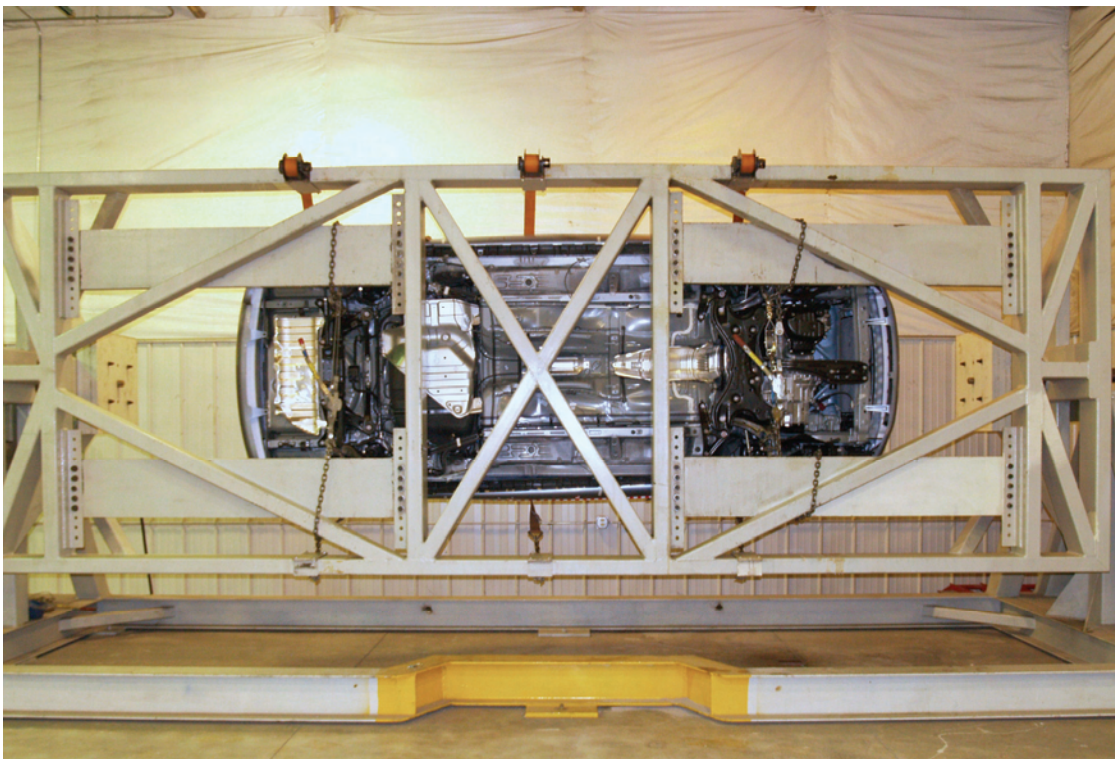


Figure A-58: FMVSS 301 90 degrees



Figure A-59: FMVSS 301 180 degrees



Figure A-60: FMVSS 301 270 degrees



Figure A-61: FMVSS 301 360 degrees



Figure A-62: 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(y) acceleration - primary – FIR100	B-4
B-2	Driver lower rib(y) acceleration - primary – FIR100	B-5
B-3	Driver lower spine (y) acceleration - primary – FIR100	B-6
B-4	Driver pelvis (y) acceleration - primary – FIR100	B-7
B-5	Passenger upper rib(y) acceleration - primary – FIR100	B-8
B-6	Passenger lower rib(y) acceleration - primary – FIR100	B-9
B-7	Passenger lower spine (y) acceleration - primary – FIR100	B-10
B-8	Passenger pelvis (y) acceleration - primary – FIR100	B-11

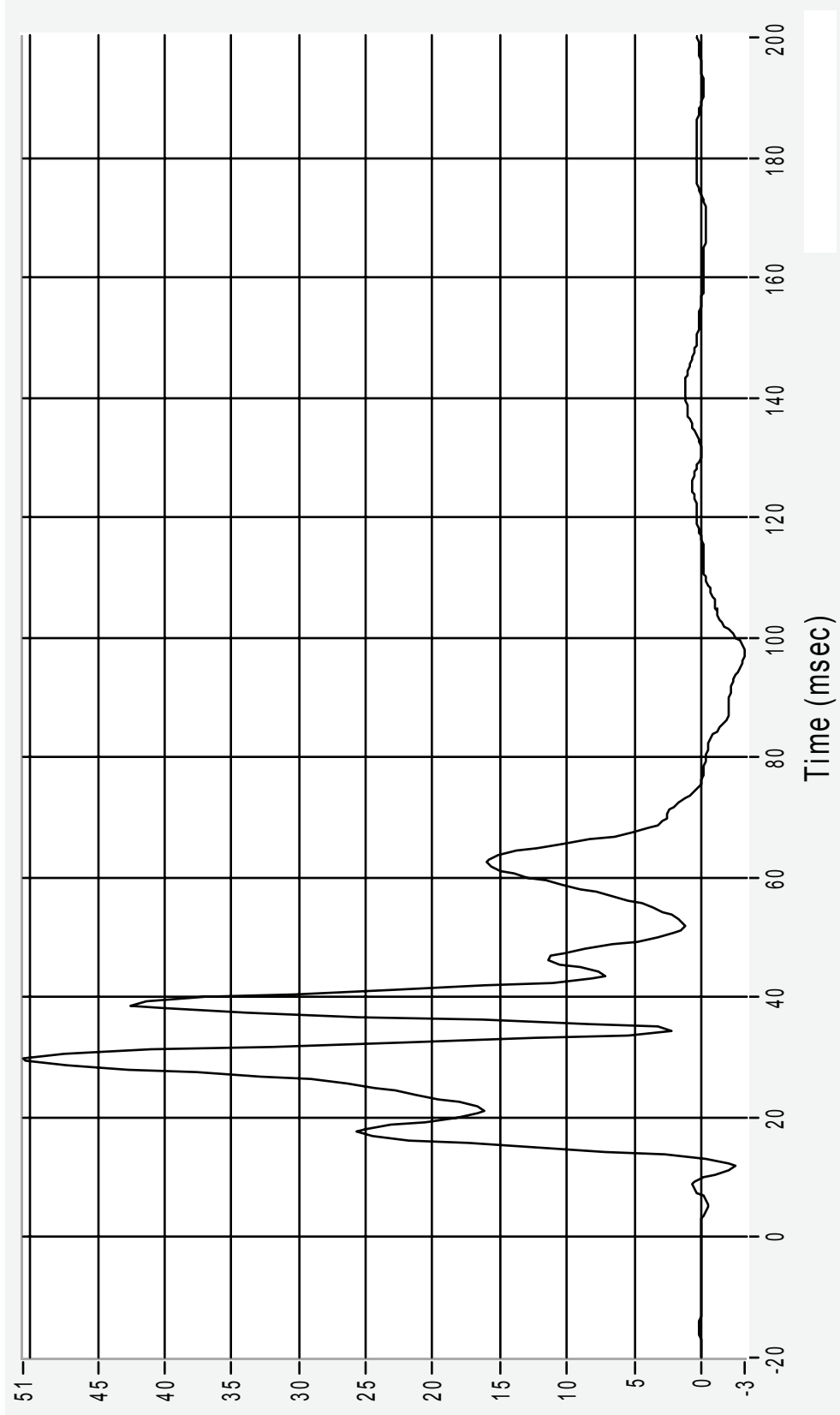
The following dummy, vehicle, and MDB response data can be found in the R&D section of the NHTSA website at: www-nrd.nhtsa.dot.gov/database/nrd-11/veh_db.html.

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	50.5	G	at	30.0	msec
Min	-3.2	G	at	97.5	msec

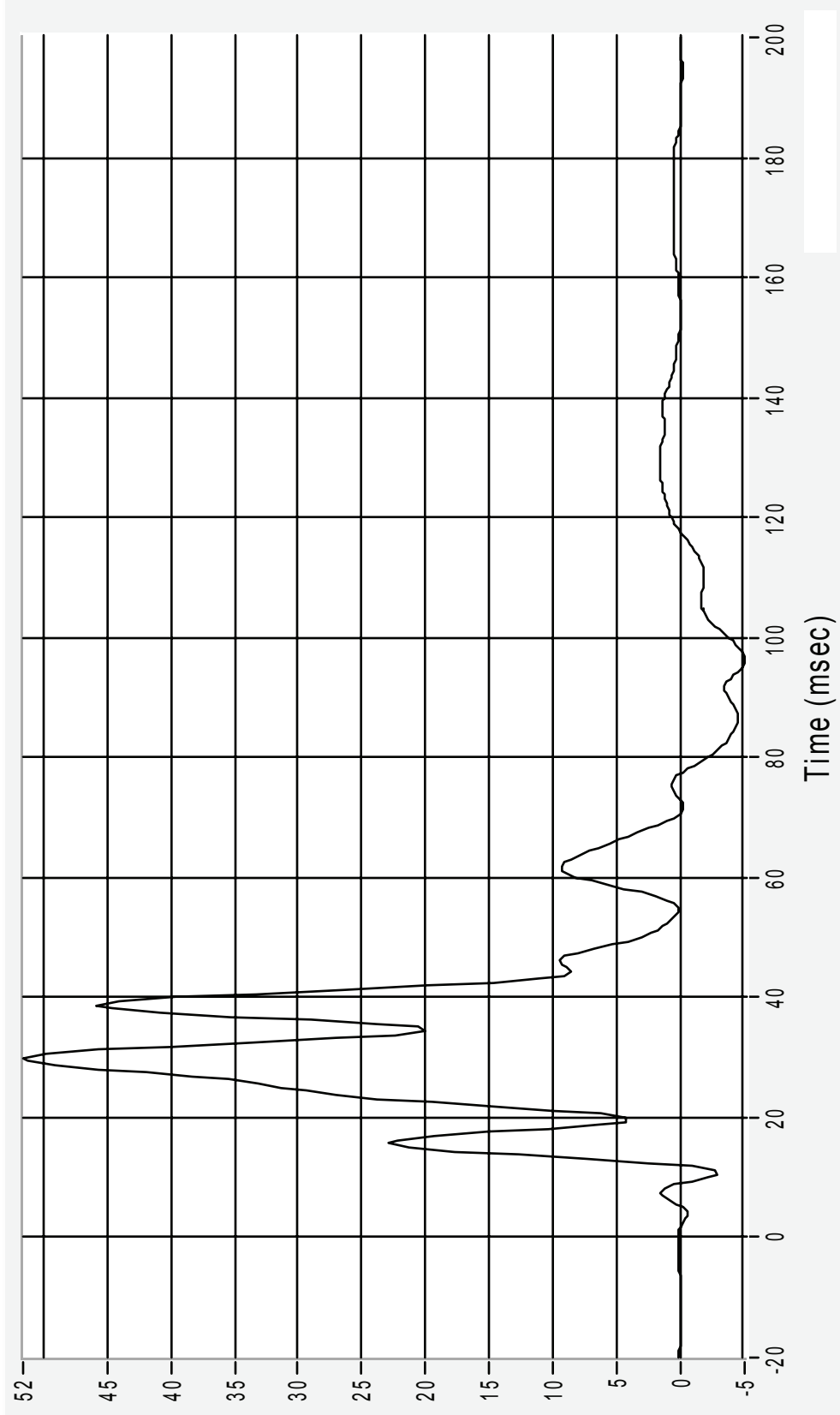


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Medical College of Wisconsin
 Vehicle Crashworthiness Lab

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

Max	51.6	G	at	30.0	msec
Min	-5.1	G	at	96.2	msec

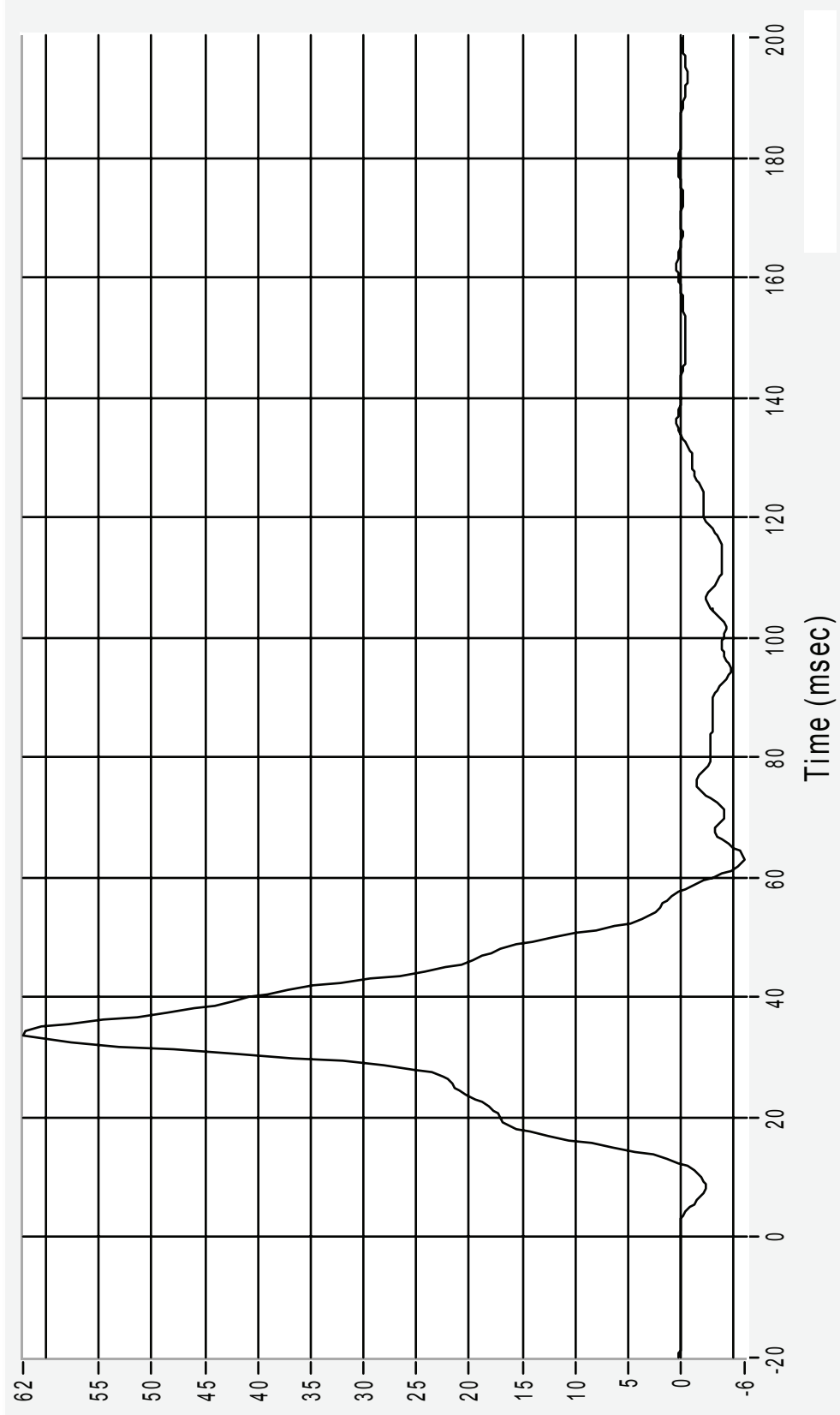


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Driver Lower Spine (Y) Acceleration
 Acceleration (G's) FIR100 Max 62.2 G at 33.8 msec
 Min -6.0 G at 63.1 msec



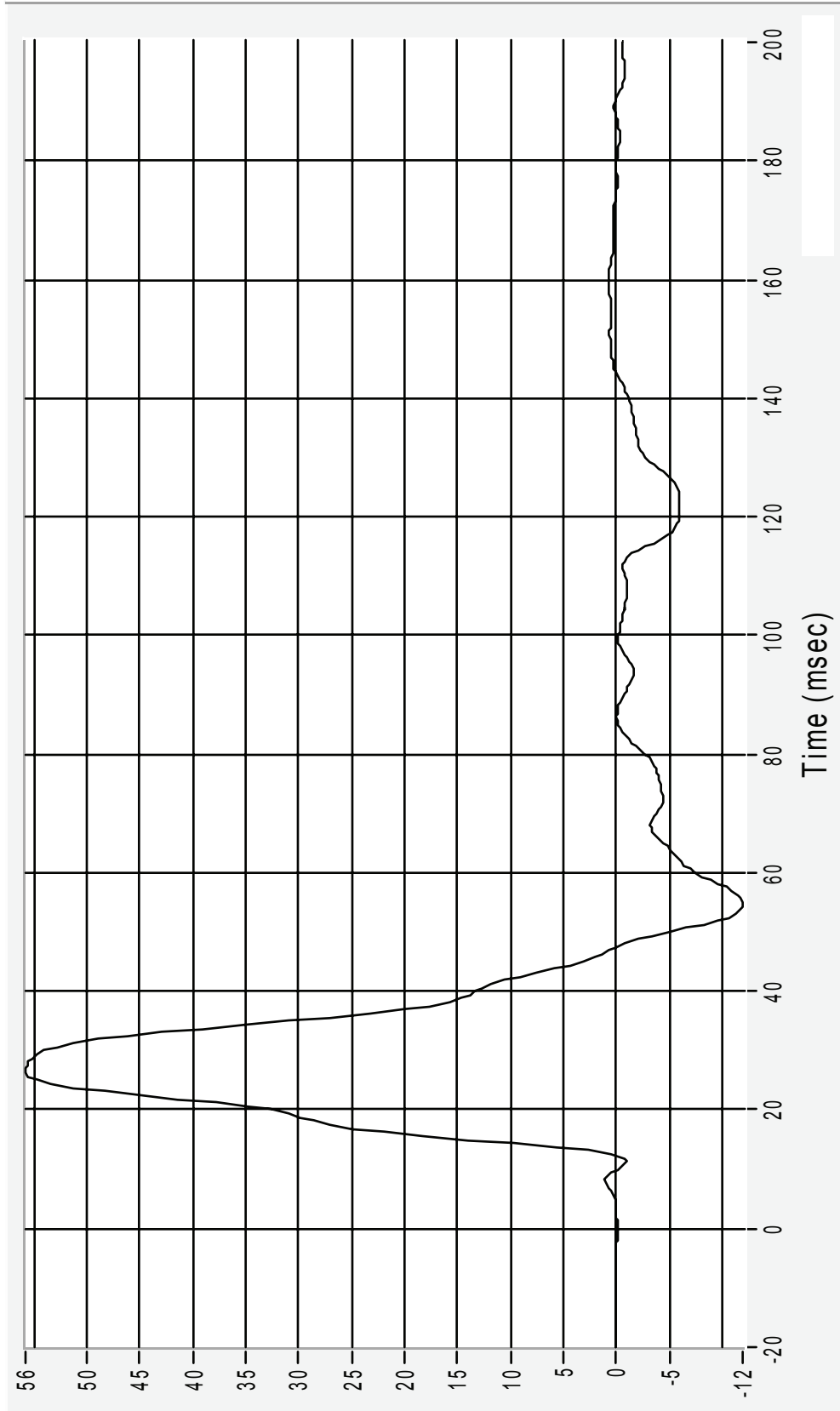
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Driver Pelvic (Y) Acceleration
 Acceleration (G's) FIR100

Max	55.8	G	at	26.2	msec
Min	-12.0	G	at	54.4	msec

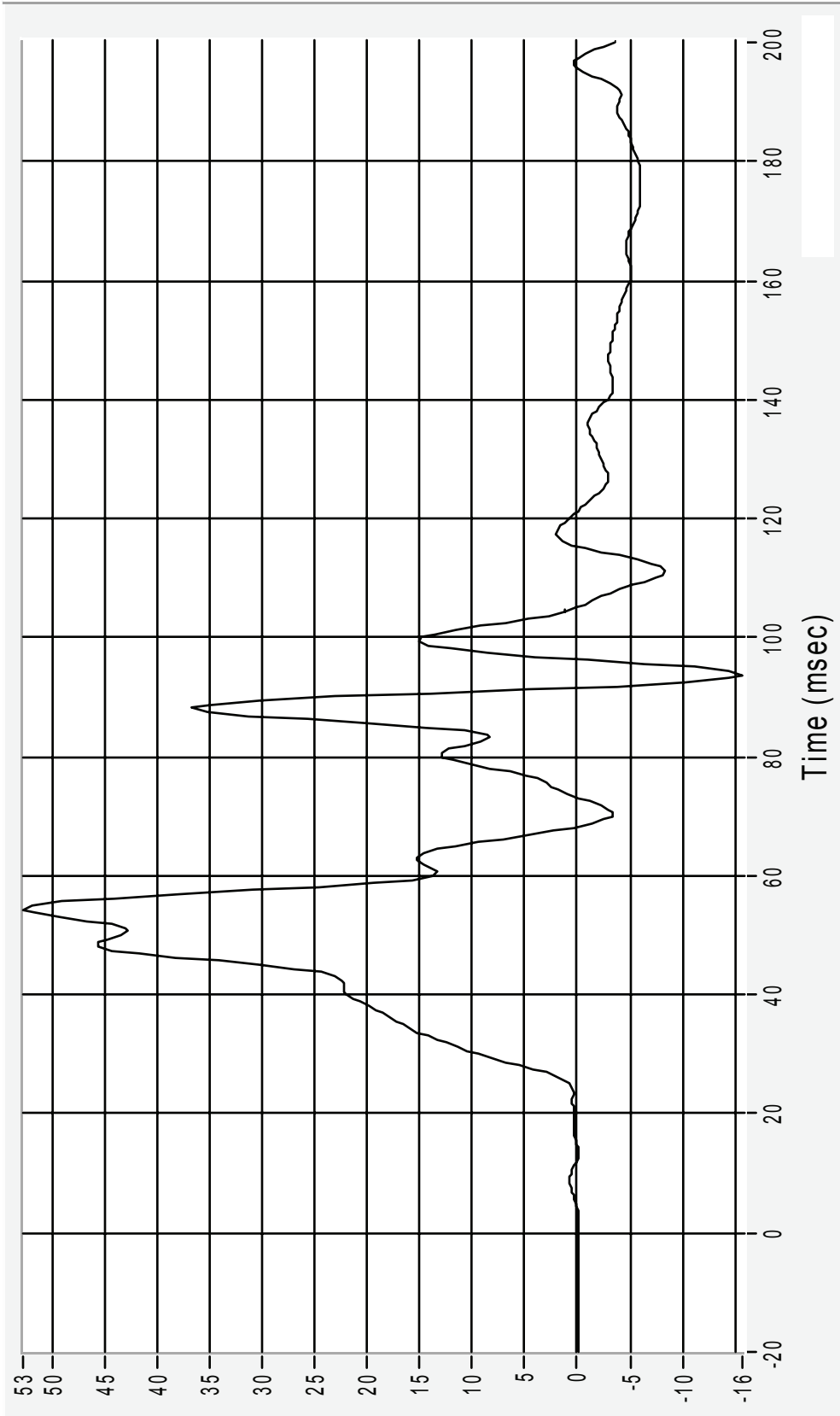


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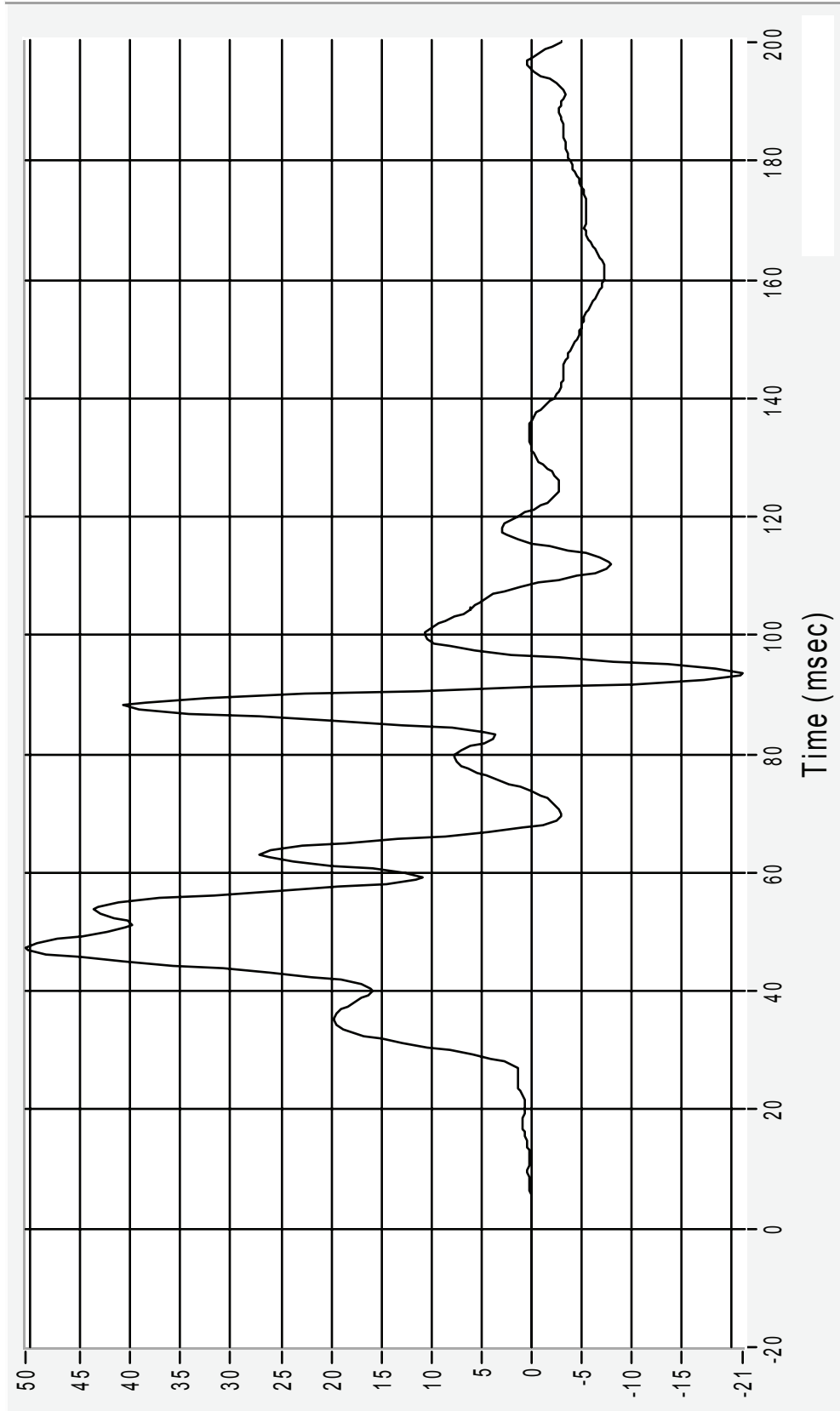
Passenger Upper Rib (Y) Acceleration
 Acceleration (G's) FIR100 Max 52.8 G at 54.4 msec
 Min -15.7 G at 93.8 msec



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Passenger Lower Rib (Y) Acceleration
 Acceleration (G's) FIR100 Max 50.5 G at 47.5 msec
 Min -21.0 G at 93.8 msec

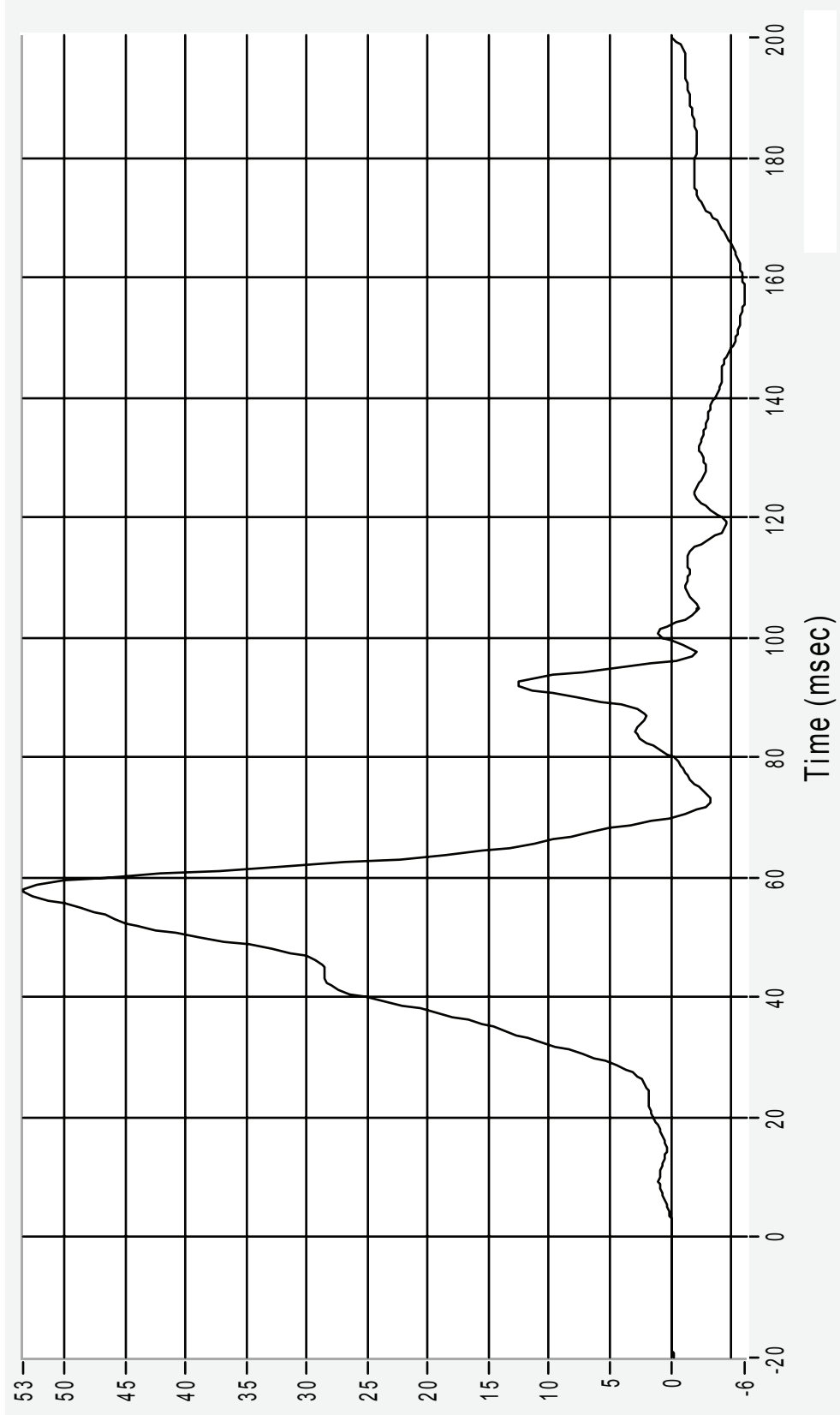


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Passenger Lower Spine (Y) Acceleration
 Acceleration (G's) FIR100 Max 53.4 G at 58.1 msec
 Min -6.1 G at 156.9 msec



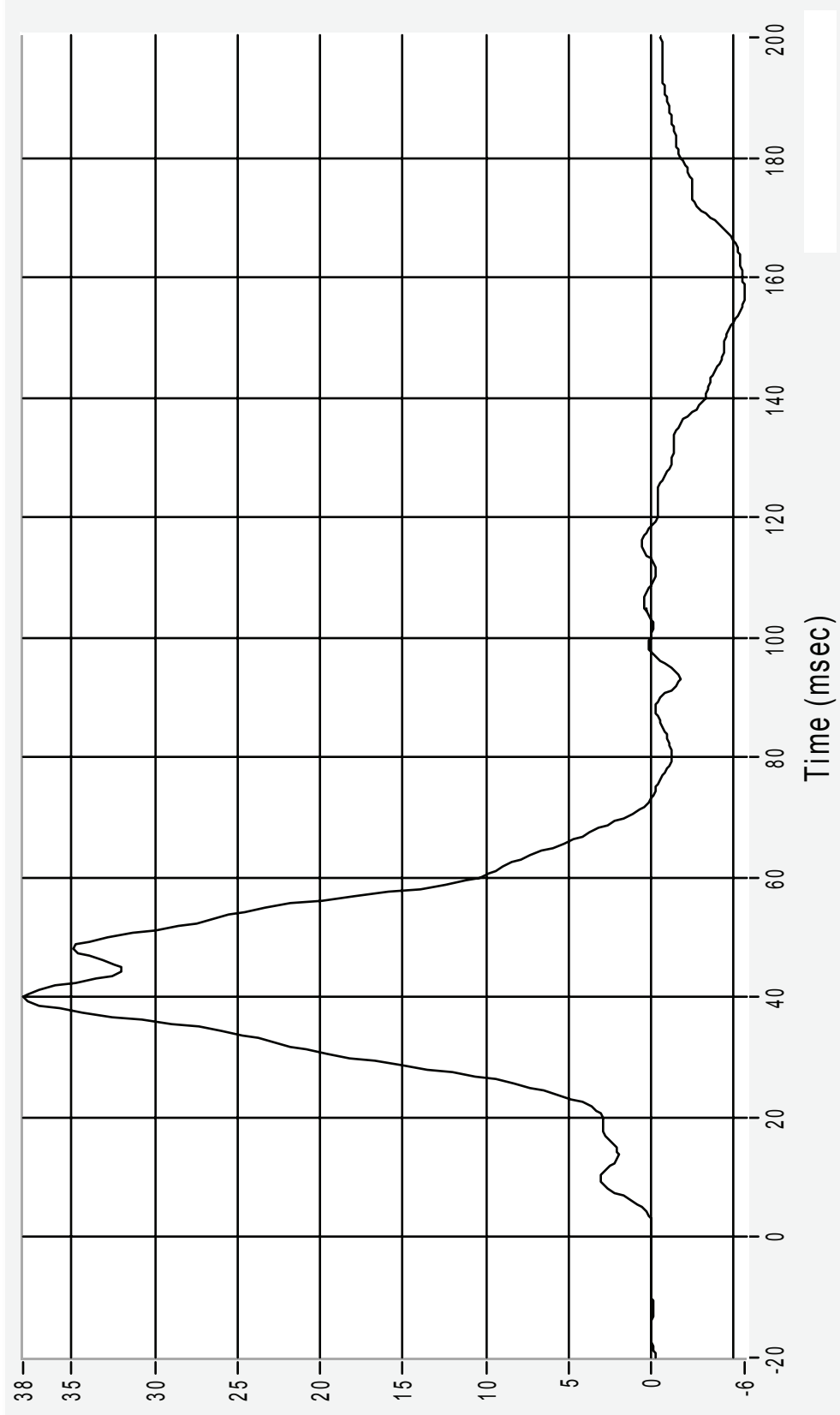
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Passenger Pelvic (Y) Acceleration
 Acceleration (G's) FIR100

Max	38.0	G	at	40.0	msec
Min	-5.6	G	at	156.9	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 4 and 5

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 3 and 4

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	-	21Sept07	5Oct07	24Sept07	7Oct07
Sequential Test Number	-	4	5	3	4
Temperature (°C)	18.9-25.5	21.2	20.9	20.7	20.7
Relative Humidity (%)	10-70	56.2	49.6	46.9	45.0
SH – Seated Height (mm)	889-909	905	899	908	909
RH – Rib Height (mm)	501-521	507	507	520	515
HP – Hip Pivot Height (mm)	99	99/99	99/99	99/99	99/99
RD – Rib From Back Line (mm)	229-241	231	230	230	229
KH – Knee Pivot from Back Line (mm)	511-526	525/523	525/526	525/526	526/526
KV – Knee Pivot to Floor (mm)	490-505	505/501	503/500	505/505	505/505
HW – Hip Width (mm)	356-391	364	366	356	358
THORAX IMPACTS					
Date	-	24Sept07	5Oct07	24Sept07	7Oct07
Sequential Test Number	-	4	5	3	4
Temperature (°C)	18.9-25.5	20.6	20.2	21.3	21.0
Relative Humidity (%)	10-70	51.7	50.7	48.7	50.0
Probe Speed (m/s)	4.21-4.33	4.22	4.22	4.22	4.22
Upper Rib Acceleration (G)	37-46	44.2	44.6	44.4	43.8
Lower Rib Acceleration (G)	37-46	43.3	43.5	38.8	38.2
Lower Spine Acceleration (G)	15-22	20.8	21.5	21.1	20.9
PELVIS IMPACTS					
Date	-	24Sept07	5Oct07	24Sept07	7Oct07
Sequential Test Number	-	4	5	3	4
Temperature (°C)	18.9-25.5	20.7	21.1	21.1	21.0
Relative Humidity (%)	10-70	51.5	47.1	47.6	50.7
Probe Speed (m/s)	4.21-4.33	4.22	4.22	4.22	4.22
Pelvis Acceleration (G)	40-60	51.8	56.9	46.3	43.9
THORACIC SHOCK ABSORBER					
Shock Absorber ID Number	-	1746	1746	31310164	31310164
Damper Setting	1-10	6	6	5	5
Date	-	11July07	4Oct07	12July07	5Oct07
Sequential Test Number	-	1	2	1	2
Temperature	18.9-25.5	19.7	20.0	19.1	19.7
Relative Humidity	10-70	33.7	37.0	40.5	38.2
Probe Speed (m/s) Low	3.05	3.05	3.05	3.05	3.10
Force (N)	836 – 1125	1082.6	1074.5	901.0	1016.8
Displacement (mm)	30 – 35	30.0	30.1	30.4	30.8
Probe Speed (m/s) Middle	4.27	4.27	4.27	4.27	4.22
Force (N)	1730 – 2099	1746.4	1756.5	1793.9	1740.4
Displacement (mm)	32 – 37	33.0	32.8	33.9	33.0
Probe Speed (m/s) High	6.10	6.10	6.10	6.10	6.10
Force (N)	3741 – 4448	3848.6	4019.4	3833.1	3840.8
Displacement (mm)	33 - 40	35.4	35.3	36.2	36.0

TEST PARAMETER	SPEC	SID HIII/056		SID HIII/058	
		PRE	POST	PRE	POST
ABDOMINAL COMPRESSION					
Date	-	17Sept07	2Oct07	17Sept07	2Oct07
Sequential Test Number	-	4	5	3	4
Temperature (°C)	18.9-25.5	21.0	20.2	21.9	20.7
Relative Humidity (%)	10-70	42.6	54.7	46.1	53.7
Force at 13 mm (N)	104-162	127.3	133.5	131.1	136.1
Force at 19 mm (N)	163-221	176.2	182.7	179.3	192.6
Force at 25 mm (N)	222-280	235.8	239.3	235.4	247.2
Force at 33 mm (N)	325-391	339.6	341.9	332.2	345.2
LUMBAR FLEXION					
Date	-	13Sept07	2Oct07	13Sept07	2Oct07
Sequential Test Number	-	4	5	3	4
Temperature (°C)	18.9-25.5	21.4	21.3	21.7	20.5
Relative Humidity (%)	10-70	43.7	54.4	43.4	46.5
Force at 0° (N)	0-26.7	16.8	23.2	0	23.1
Force at 20° (N)	97.8-151.2	99.6	123.3	101.7	112.6
Force at 30° (N)	151.2-204.6	156.1	163.7	152.3	182.3
Force at 40° (N)	204.6-258	219.5	208.1	226.5	216.5
Return Angle	12° Maximum	5.7	4.6	3.5	2.9
HYBRID III LATERAL NECK					
Date	-	19Sept07	3Oct07	21Sept07	3Oct07
Sequential Test Number	-	4	5	3	4
Temperature (°C)	18.9-25.5	21.3	20.0	21.2	20.5
Relative Humidity (%)	10-70	54.7	49.2	48.1	44.5
Pendulum Speed (m/s)	6.89-7.13	6.94	6.92	7.12	7.11
Pendulum Pulse 10ms (m/s)	1.96-2.55	1.97	2.02	2.25	2.25
Pendulum Pulse 20ms (m/s)	4.12-5.10	4.30	4.43	5.01	5.04
Pendulum Pulse 30ms (m/s)	5.73-7.01	6.40	6.33	6.63	6.91
Pendulum Pulse 40 –70 ms (m/s)	6.27-7.64	7.06	6.95	6.57	6.86
Max Head rotation (deg)	66-82	75.2	76.1	81.8	80.5
Head angle crosses zero (ms)	58-67	62.3	63.9	63.0	62.2
Peak Moment (Nm)	73-88	85.1	83.4	76.3	75.2
Moment crosses zero (ms)	49-63	53.3	52.2	54.7	56.0
Max rotation wrt pk. moment (ms)	2-15	4.48	3.12	4.32	5.84
HYBRID III LATERAL HEAD DROP					
Date	-	13Sept07	2Oct07	13Sept07	2Oct07
Sequential Test Number	-	4	5	3	4
Temperature (°C)	18.9-25.5	20.2	20.7	21.1	20.2
Relative Humidity (%)	10-70	44.3	47.8	43.7	50.2
Resultant Max (G)	120-150	129.7	124.3	129.3	130.3
Longitudinal Max (G)	<15	4.03	9.37	7.04	5.42

**DUMMY INSPECTION LIST
PRE AND POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

		SID H3 056		SID H3 058	
		PRE	POST	PRE	POST
	Date				
	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