

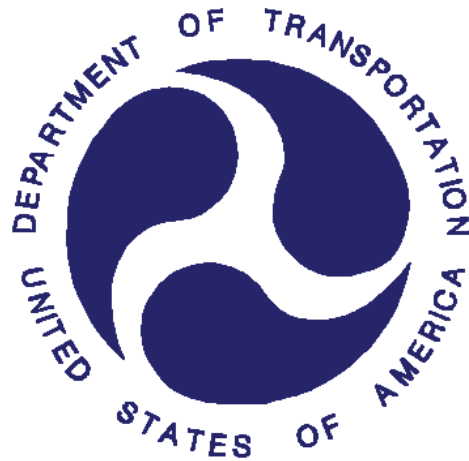
REPORT NUMBER: MCW-DOT-08SN05

**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

2008 TOYOTA FJ CRUISER UTILITY VEHICLE

NHTSA NUMBER: M85109

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TEST DATE: 09 OCTOBER 2007

REPORT DATE: 19 OCTOBER 2007

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
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RULEMAKING
OFFICE OF CRASHWORTHINESS STANDARDS
1200 NEW JERSEY AVE, SE, ROOM W43-410
WASHINGTON, D.C. 20590**

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Date:

Reviewed by:_____

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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 FJ Cruiser Utility Vehicle 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 09 October 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 19 °C. The target vehicle's maximum post test static crush was 215 mm at level 2. The test vehicle's occupant performance is as follows: <table border="1" data-bbox="154 1239 1299 1512"> <thead> <tr> <th></th> <th>Units</th> <th>DRIVER</th> <th>PASS.</th> </tr> </thead> <tbody> <tr> <td>Left upper rib (LUR) acceleration</td> <td>G</td> <td>21.0</td> <td>36.2</td> </tr> <tr> <td>Left lower rib (LLR) acceleration</td> <td>G</td> <td>29.1</td> <td>38.3</td> </tr> <tr> <td>Lower spine (T₁₂) acceleration</td> <td>G</td> <td>27.0</td> <td>29.0</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td></td> <td>28</td> <td>34</td> </tr> <tr> <td>Pelvis (PEV) acceleration</td> <td>G</td> <td>44.0</td> <td>17.8</td> </tr> <tr> <td>HIC</td> <td></td> <td>33.4</td> <td>266.6</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.							Units	DRIVER	PASS.	Left upper rib (LUR) acceleration	G	21.0	36.2	Left lower rib (LLR) acceleration	G	29.1	38.3	Lower spine (T ₁₂) acceleration	G	27.0	29.0	Thoracic Trauma Index (TTI)		28	34	Pelvis (PEV) acceleration	G	44.0	17.8	HIC		33.4	266.6
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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 Adm. 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 Ford 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 FJ Cruiser Utility Vehicle 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 2257.7 kg test vehicle was impacted by the 1362.2 kg MDB traveling at a speed of 61.9 km/h (measured inline with the guidance system.) The test was conducted at the Medical College of Wisconsin on 09 October 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

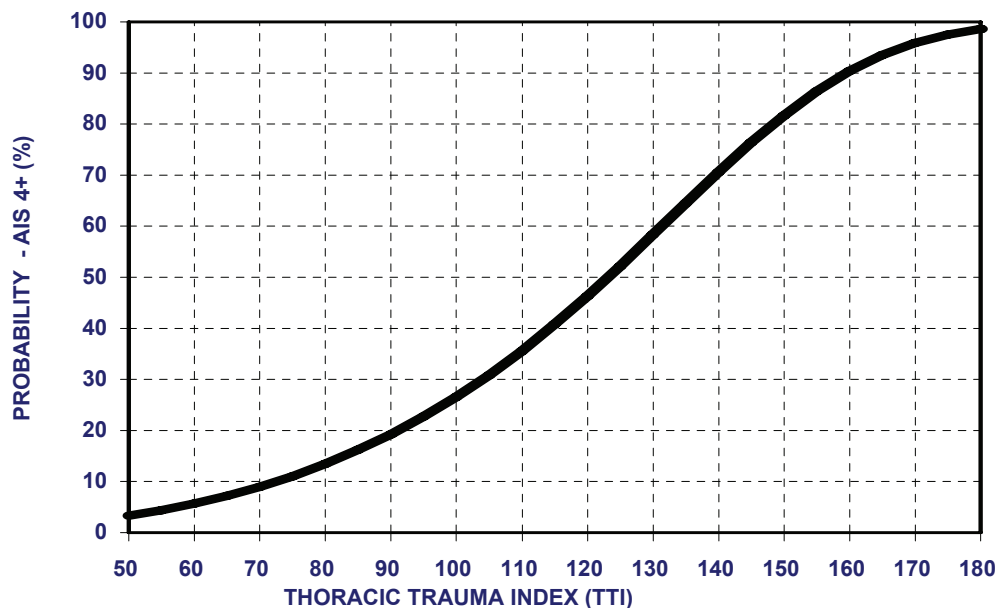
The test vehicle sustained a maximum static crush of 215 mm at level 2, 1200 mm rearward of the vertical impact line.

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	33.4	266.6
T1 (ms)	52.2	70.4
T2 (ms)	88.2	83.4
TTI	28	34
Maximum pelvic acceleration (G)	44.0	17.8

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	Deployed	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	Yes	Deployed
Seat belt load limiter	Yes	N/a	Yes	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	2008	Air conditioning	Yes
Make	Toyota	Anti-lock brakes	Yes
Model	FJ Cruiser	AM/FM radio	Yes
Body style	Sport Utility Vehicle	All wheel drive	Yes
NHTSA number	M85109	Combo bag	No
MCW test ID	08SN05	Console	Yes
VIN	JTEBU11F480104956	Cruise/speed control	Yes
Color	White with brick	Disc brakes	Yes – front and rear
Build date	July 2007	Frontal bag	Yes
Engine No. of cylinders	6	Head bag	Yes – front and rear
Engine Displacement (L)	4.0	Power door locks	Yes
Engine Placement	Longitudinal	Power brakes	Yes
Transmission	Manual 6 speed	Power steering	Yes
Final drive	4 wheel drive	Power windows	Yes
Delivery date	September 21, 2007	Roof rack	Yes
Odometer reading	54	Torso bag	Yes – front only

CERTIFICATION LABEL INFORMATION			
Manufacturer	Toyota Motor Corporation	GVWR (kg)	2525
		GAWR front(kg)	1180
Date of manufacture	July 2007	GAWR rear (kg)	1380

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

CARGO CAPACITY CALCULATION			
	Units	Value	Reference label
Vehicle maximum capacity	kg	540	(A)
Number of occupants (7) X 68.04 kg	kg	340.2	(B)
Cargo capacity (RCLW) †	kg	136.4	(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	567.3	612.3	615
Right front	kg	492.3	519.1	518.6
Left rear	kg	451.4	576.4	578.6
Right rear	kg	455.5	550	551.8
Total front	kg	1059.6	1131.4	1133.6
% Total front	%	53.9	50.1	50.1
Total rear	kg	906.9	1126.4	1130.4
%Total rear	%	46.1	49.9	49.9
Total	kg	1966.5	2257.8	2264

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	1966.5	(D)
Maximum cargo capacity (RCLW)	kg	136.1	(C)
Mass of SID HIII's (1 or 2)	kg	161.4	(E)
Test vehicle target mass (TVTW)	kg	2264	(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)	No ballast added
Location	N/a
<u>Components removed from test vehicle</u> Non-struck front and rear door glasses	

IMPACT LOCATION ON TEST VEHICLE	
Wheelbase	2690 mm
Nominal impact point	405 mm rearward of front axle
Actual impact point	405mm rearward of front axle

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

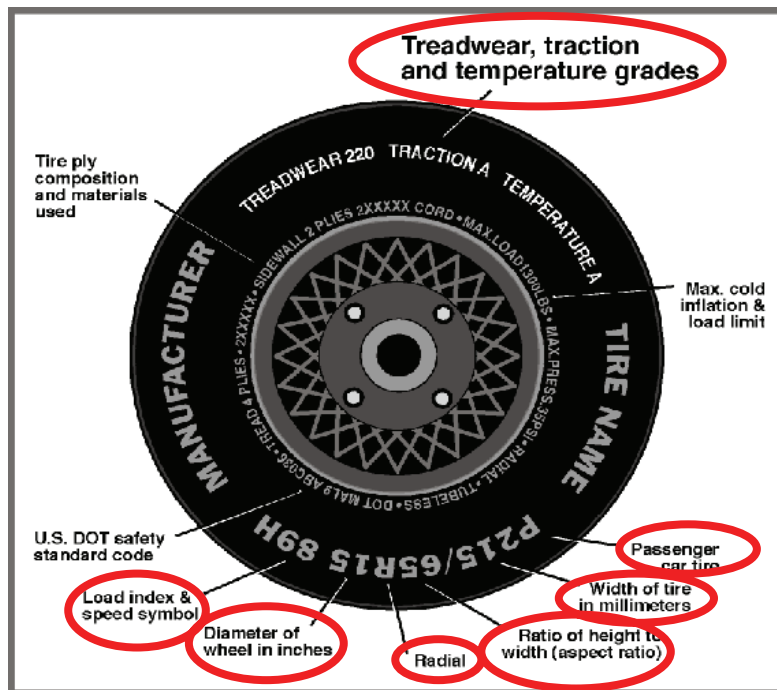
TEST VEHICLE ATTITUDES				
	Units	As delivered	As tested	Fully loaded
Left front	mm	975	960	959
Right front	mm	972	970	970
Left rear	mm	1025	977	975
Right rear	mm	1029	999	998
CG (X)	mm	1240.6	1342.0	1343.1

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

CG (X) measured rearward from front axle centerline

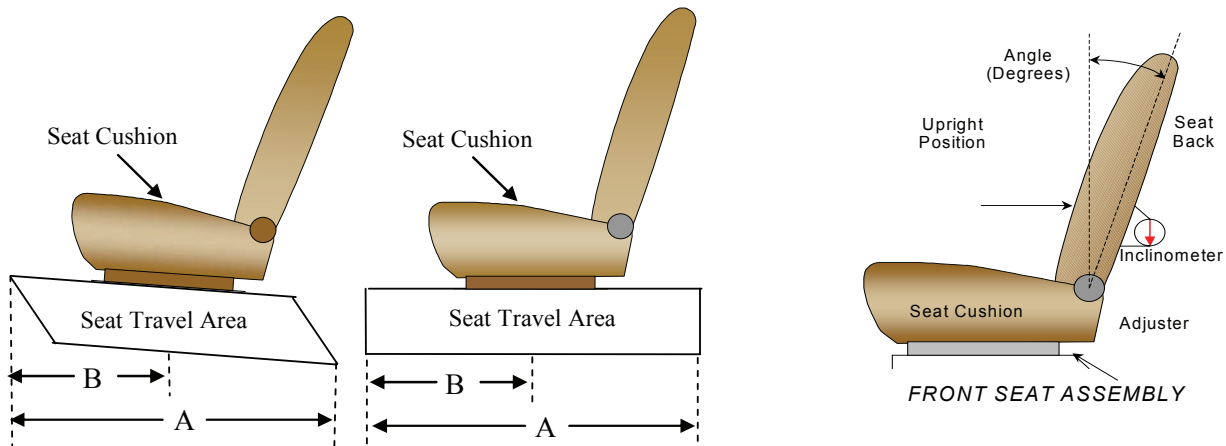
AUTOMATIC DOOR LOCK (ADL) INFORMATION				
	Left front	Left rear	Right front	Right rear
ADL present	No	No	No	No
ADL deactivated	N/a	N/a	N/a	N/a
Deactivation method	N/a			
Door lock status	Unlocked	Unlocked	Unlocked	Unlocked

DATA SHEET NO. 2
TEST VEHICLE TIRE INFORMATION



TIRE INFORMATION		
Measured Parameter	Front	Rear
Maximum tire pressure (kPa)	300	300
Cold / test pressure (kPa)	221	221
Recommended tire size	P265/70R17	P265/70R17
Tire size on vehicle	P265/70R17	P265/70R17
Tire manufacturer	Bridgestone	Bridgestone
Tire name	Dueller HT	Dueller HT
Tire type	All season LT	All season LT
Tire width (mm)	265	265
Ratio of height to width (aspect ratio)	70	70
Radial	Steel	Steel
Wheel diameter (inches)	17	17
Load index & speed symbol	113S	113S
Tread wear	360	360
Traction grade	B	B
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	Power – bucket	Fixed – split bench
Fore/aft total travel (mm)	277	N/a
Number of detents	17	N/a
Test position	7 th from full forward	N/a

‡Full forward = notch 0

Seat back position

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

SEAT BACK POSITION		
	Left front seat	Left rear seat
Seat back angle @ head rest post	0°	Fixed
Test position	4 th notch from full upright	N/a

‡Full upright = notch 0

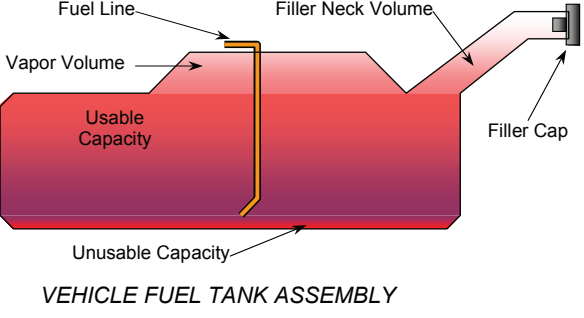
Seat belt position

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	Yes	No
Total travel (mm)	85	N/a
Test position	Highest position	N/a

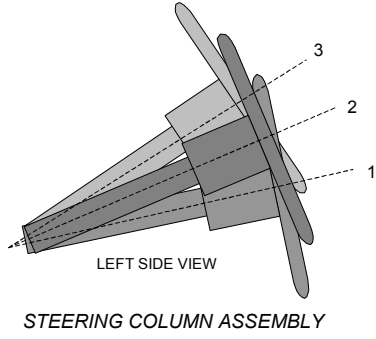
DATA SHEET NO. 3
TEST VEHICLE INFORMATION (CONTINUED)

Fuel tank information

STODDARD INFORMATION			
Description	Units	Value	
Usable capacity of standard equipment fuel tank	L	72.0	
Usable capacity of optional equipment fuel tank	L	0	
Usable capacity of vehicle used for certification testing to requirements	L	72.0	
Amount of stoddard added for test	L	67.7	
% Usable capacity (92%-94%)	%	94.0	
Operational instructions	None		
Electric fuel pump present	Yes		
Operating condition of test vehicle for fuel pump operation	The fuel pump is activated when the ignition is turned on.		

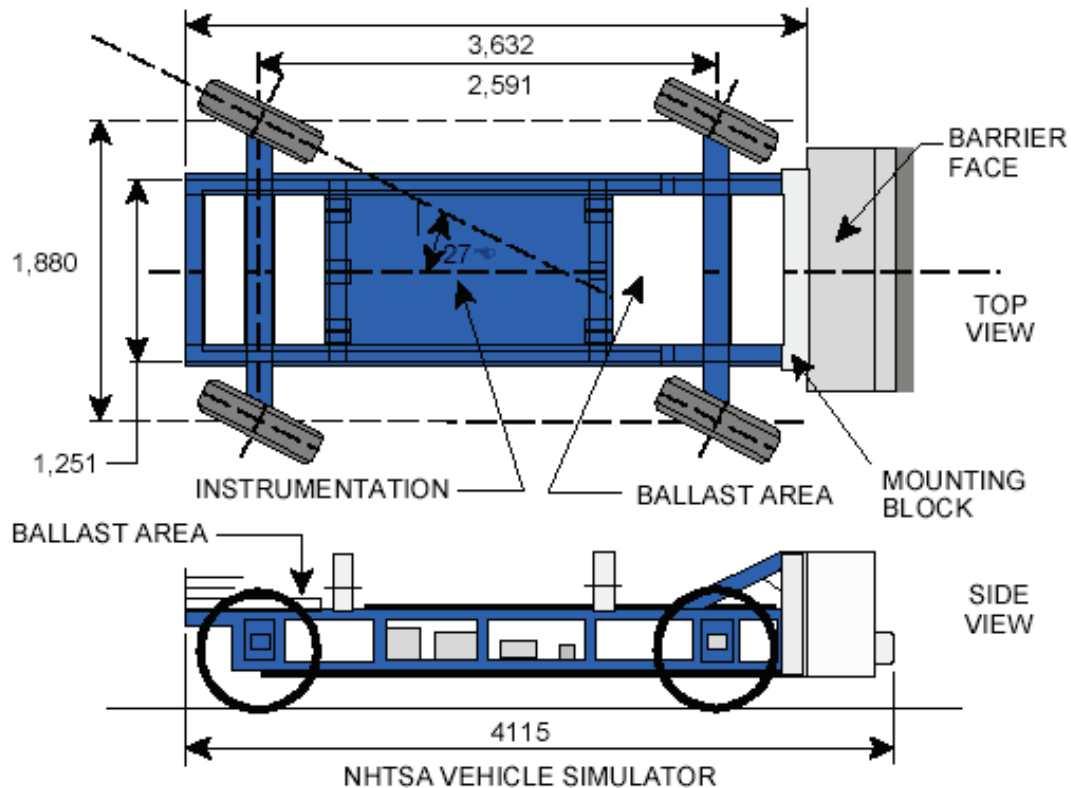
Steering wheel information

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

ADJUSTABLE STEERING COLUMN		
Adjustable column	Yes	
Steering wheel angle in upper most position	25.6°	
Steering wheel fore/aft travel	Non-telescoping	
Number of detents	6	
Test position	Steering wheel positioned 25.6 relative to side sill panel. The steering column had no telescopic adjustment	

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

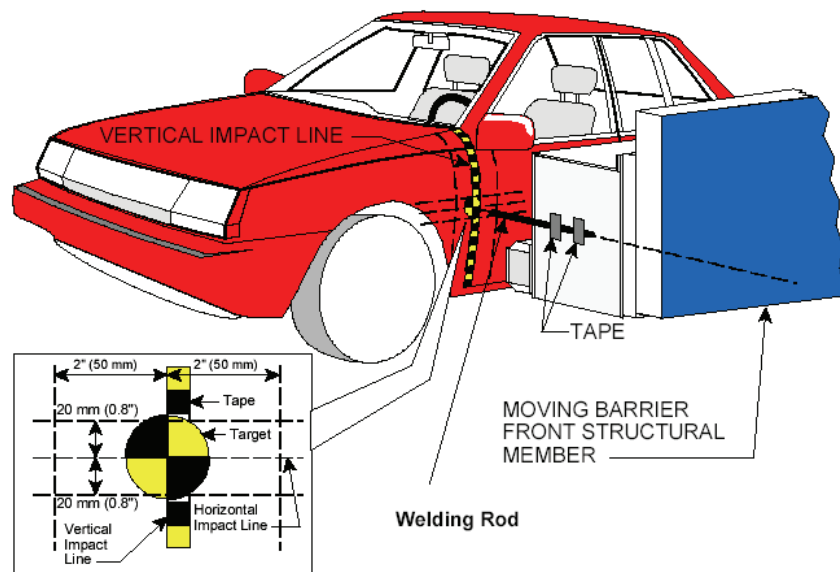
MDB SPECIFICATIONS				
	Units	Specification	Range	Value
Overall Width of Framework Carriage	mm	1251	1226-1276	1245
Overall Length w/Impactor Face	mm	4115	4090-4140	4101
Overall Length w/o Impactor Face	mm	3632	3607-3657	3617
Longitudinal Cg from Front Axle	mm	1123	1098-1148	1135
Track Width	mm	1880	1855-2005	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	109.1
Right front	kg	165.9
Left rear	kg	576.4
Right rear	kg	510.9
Total front	kg	275.0
% Total front	%	20.2
Total rear	kg	1087.3
%Total rear	%	79.8
Total	kg	1362.3

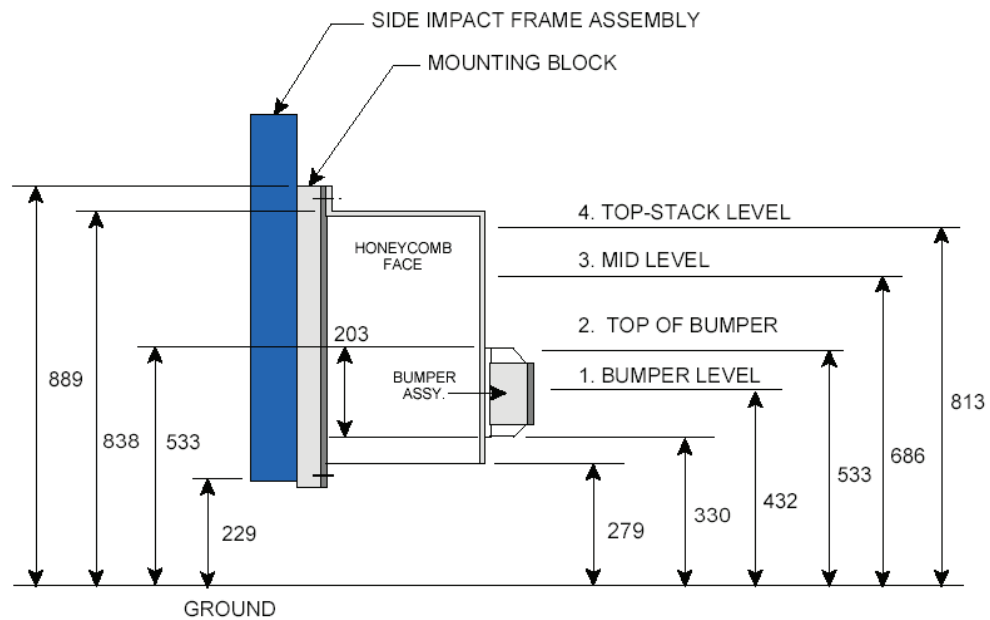
IMPACT SPEED				
	Units	Specification	Range	Value
Primary speed trap	kmh	61.9	61.1-62.7	61.9
Redundant speed trap	kmh	61.9	61.1-62.7	61.7



IMPACT POINT INFORMATION		
Vertical impact line is	405 mm rearward of front axle	
Actual impact is	405 mm rearward of front axle	
Measurement	Value	Tolerance
Impact point distance from vertical impact line	0 mm forward	+/- 50 mm
Impact point distance from horizontal impact line	10 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	280	279
Bottom of bumper	mm	330	327-333	330	330
Top of bumper	mm	533	530-536	534	536
Top of barrier	mm	838	835-841	837	838



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	To side curtain airbag; top of head to side header
Upper torso contact	To seat mounted side airbag	To side curtain airbag and interior panel at window sill
Lower torso contact	To seat mounted side airbag	To left rear interior panel 280 mm below window sill
Left leg contact	To left front door panel 90 mm below arm rest	To left rear interior panel 45 mm below arm rest
Left knee contact	To left front door panel 48 mm below arm rest	To left rear interior panel at arm rest

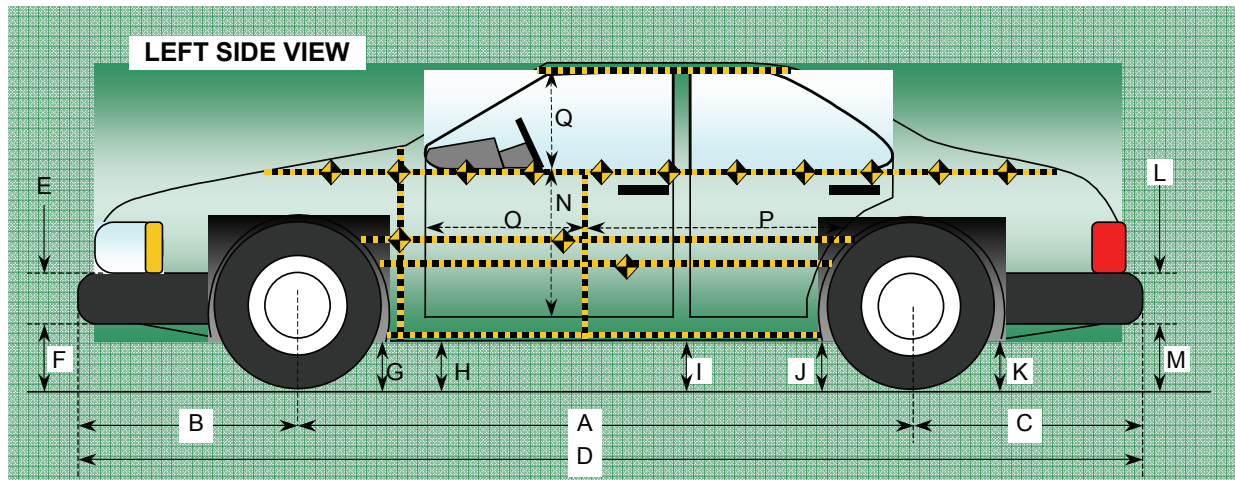
POST TEST DOOR OPENING AND SEAT TRACK INFORMATION		
Description	Front	Rear
Locked/unlocked doors	Unlocked	Unlocked
Left side door opening	Closed/latched/inoperable	Closed/latched/inoperable
Right side door opening	Open/unlatched/operable	Open/unlatched/operable
Seat movement	~17 mm of seat crush	~60 mm of seat crush
Seat back failure	None	None

POST TEST STRUCTURAL OBSERVATIONS	
Critical areas of performance	Observations/conclusions
Pillar performance	None
Sill separation	Sill separation 33 mm at a-pillar
Windshield damage	None
Window damage	None
Other notable effects	Max. separation of 147 mm at a-pillar at top of front driver's side window

DATA SHEET NUMBER 5
POST TEST OBSERVATIONS (CONTINUED)

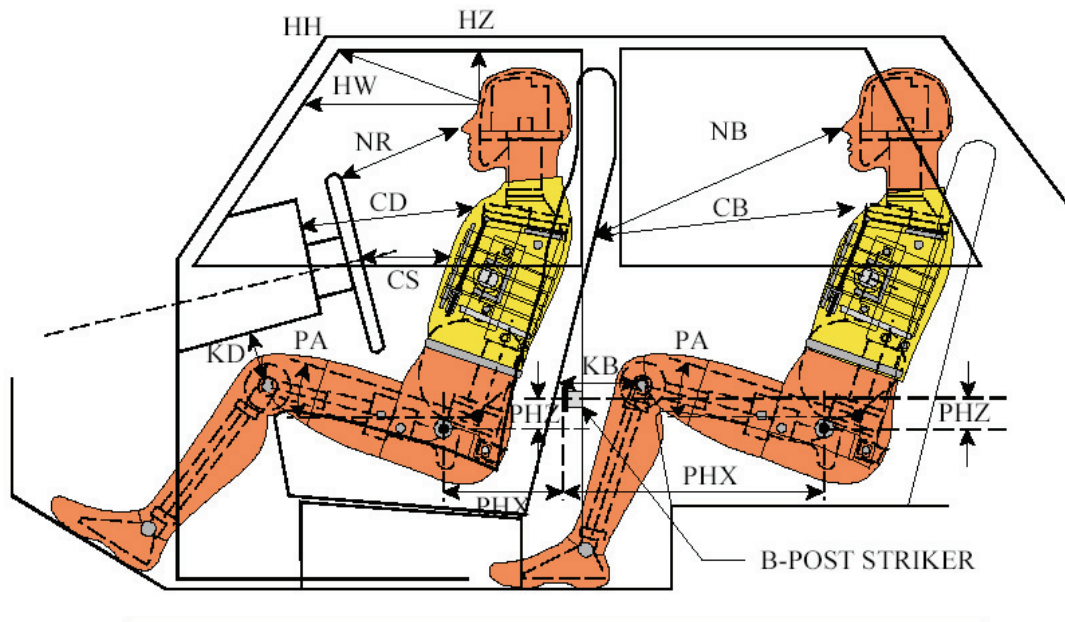
SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION				
Restraint Type	Left front (Driver) occupant Location 01		Left rear (passenger) occupant Location 04	
	Installed	Operation	Installed	Operation
Front airbag	Yes - steering wheel	Deployed	No	N/a
Side airbag	Yes - seat back	Deployed	No	N/a
Head airbag	No	N/a	No	N/a
Curtain airbag	Yes – side header	Deployed	Yes – side header	Deployed
Seat belt pretensioner	Yes	Deployed	Yes	Deployed
Seat belt load limiter	Yes	N/a	Yes	N/a

DATA SHEET NUMBER 6
VEHICLE PRE AND POST MEASUREMENTS



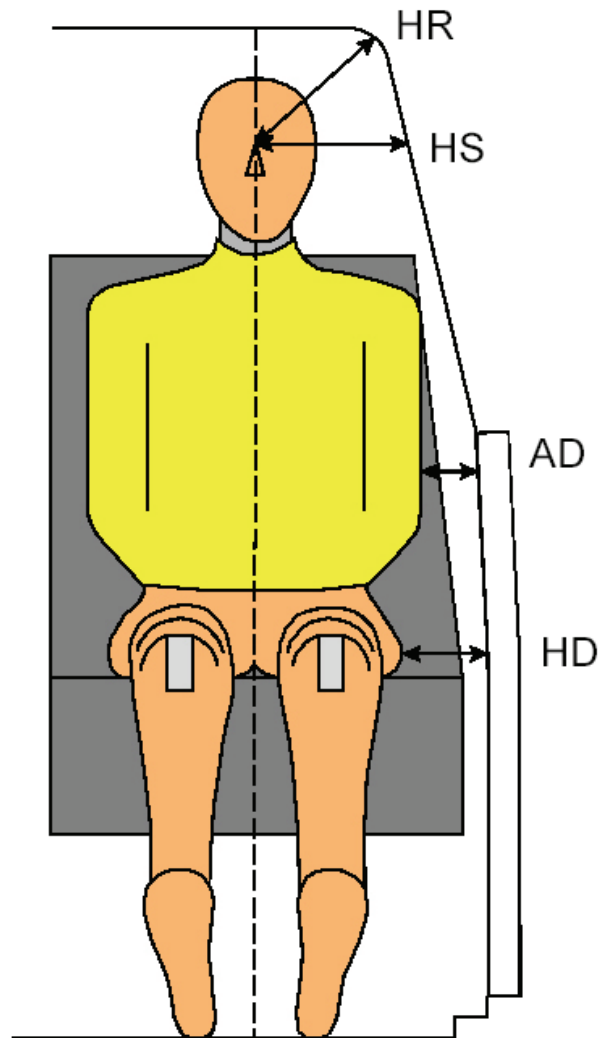
VEHICLE DIMENSIONS				
Code	Description	Pre test	Post test	Change
		mm	mm	mm
A	Wheelbase	2690	2653	-37
B	Front axle to front side of vehicle	704	727	23
C	Rear axle to rear side of vehicle	715	713	-2
D	Total length at centerline	4545	4534	-11
E	Front bumper thickness	277	277	0
F	Front bumper bottom to ground	492	503	11
G	Sill height at front wheel well	485	469	-16
H	Sill height at front door leading edge	463	410	-53
I	Sill height at b-pillar	472	420	-52
J1	Sill height at rear wheel well	448	438	-10
J2	Pinch weld height at rear wheel well	482	505	23
K	Sill height aft of rear wheel well	546	477	-69
L	Rear bumper thickness	210	210	0
M	Rear bumper bottom to ground	454	399	-55
N	Sill height to window bottom sill	771	755	-16
O	Front door leading edge to impact C/L	1138	1124	-14
P	Rear door trailing edge to impact C/L	497	481	-16
Q	Front window opening	452	453	1
R	Right side length	4109	4112	3
S	Left side length	4109	4093	-16
T	Vehicle width at b-pillar	1855	1720	-135

DATA SHEET NUMBER 7
SID HIII LONGITUDINAL CLEARANCES



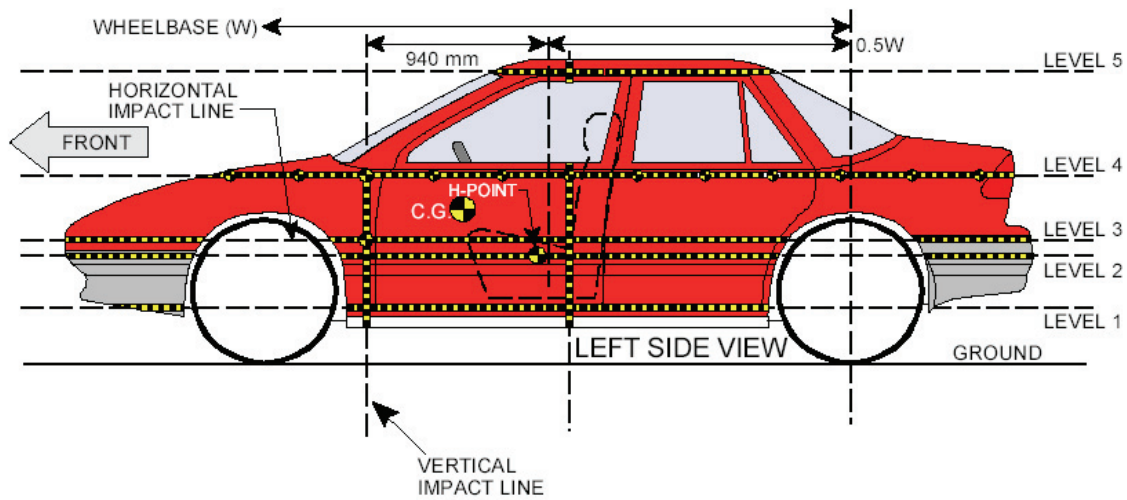
SID HIII LONGITUDINAL CLEARANCE MEASUREMENTS					
Driver code	Pass. code	Measurement description	Units	Left front seat	Left rear seat
		ATD serial number	-	056	058
HH	-	Head to header	mm	741	N/a
HW	-	Head to windshield	mm	885	N/a
HZ	HZ	Head to roof	mm	254	224
NR	NB	Nose to rim/nose to seatback	mm	460	625
CD	CB	Chest to dash or seatback	mm	528	507
CS	-	Chest to steering wheel	mm	440	N/a
KDL	KBL	Left knee to dash or seatback length	mm	113	149
KDA	KBA	Left knee to dash or seatback angle	°	29.0	38.7
KDR	KBR	Right Knee to dash or seatback length	mm	111	143
KDA	KDA	Right knee to dash or seatback angle	°	25.9	40.4
PA	PA	Pelvic angle	°	23.8	23.4
PHX	PHX	H-Point to striker (x-axis)	mm	325	-544
PHZ	PHZ	H-Point to striker (z-axis)	mm	211	159

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	260	231
HS	Head to side window	mm	385	252
-	Shoulder to door	mm	120	73
HD	H-point to door	mm	142	126

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	1682	6	2400
4	Window sill	1222	67	1350
3	Mid-door	845	184	1350
2	Driver H-point	780	215	1200
1	Axle centerline or sill top	468	188	1350
Maximum static crush		215 mm at level 2 1200 mm rearward from vertical impact line		

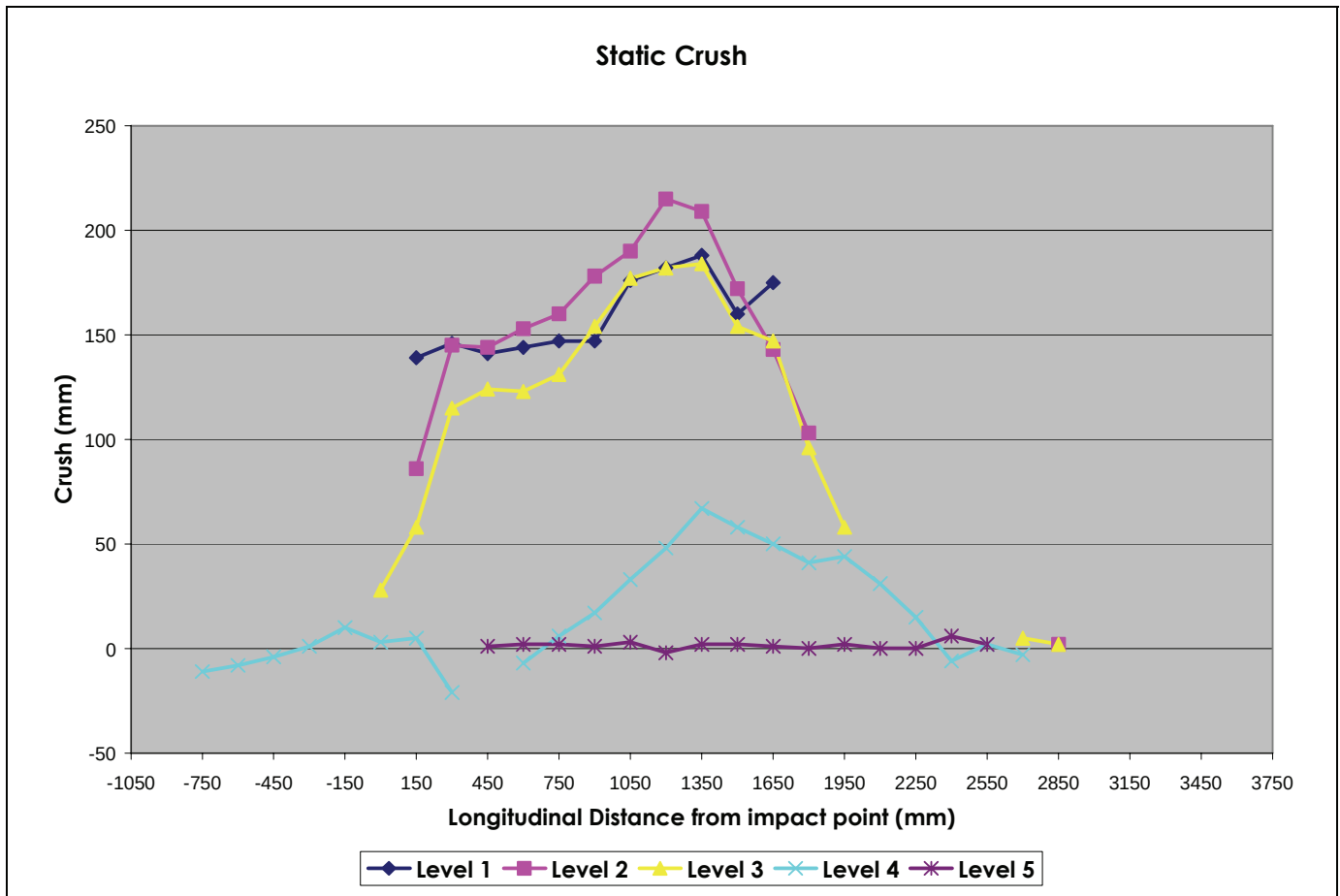
Height measurements taken 750 mm rearward from vertical impact line.

DATA SHEET 10
VEHICLE STATIC CRUSH PROFILE

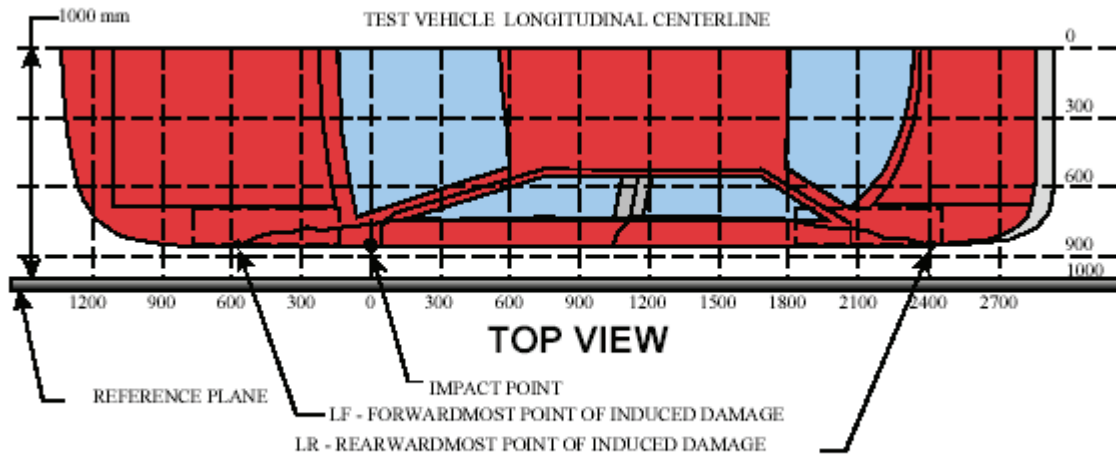
Note: All dimensions are in millimeters with a tolerance of ± 3 mm

TEST VEHICLE STATIC CRUSH																
Level		1			2			3			4			5		
Height		468			780			845			1222			1682		
		Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush
DISTANCE IN MILLIMETERS (mm) FROM IMPACT POINT	-1050															
	-900															
	-750										277	266	-11			
	-600										262	254	-8			
	-450										244	240	-4			
	-300										231	232	1			
	-150										217	227	10			
	0							176	204	28	214	217	3			
	150	206	345	139	175	261	86	172	230	58	209	214	5			
	300	202	348	146	170	315	145	167	282	115	223	202	-21			
	450	201	342	141	165	309	144	161	285	124				384	385	2
	600	199	343	144	160	313	153	157	280	123	223	216	-7	380	382	2
	750	197	344	147	157	317	160	153	284	131	222	228	6	378	380	2
	900	196	343	147	154	332	178	151	305	154	218	235	17	377	378	1
	1050	199	375	176	152	342	190	148	325	177	215	248	33	373	376	3
	1200	199	381	182	153	368	215	147	329	182	210	258	48	377	375	-2
	1350	200	388	188	154	363	209	148	332	184	212	279	67	373	375	2
	1500	204	364	160	157	329	172	151	305	154	210	268	58	373	375	2
	1650	214	389	175	162	305	143	155	302	147	210	260	50	373	374	1
	1800				166	269	103	160	256	96	212	253	41	375	375	0
	1950							122	180	58	208	252	44	376	378	2
	2100										214	245	31	382	382	0
	2250										222	237	15	390	390	0
	2400										234	228	-6	398	404	6
	2550										245	247	2	410	412	2
	2700							141	146	5	260	257	-3			
	2850				180	182	2	180	182	2						
3000																
	3150															
	3330															

DATA SHEET 10
VEHICLE STATIC CRUSH PROFILE (CONTINUED)

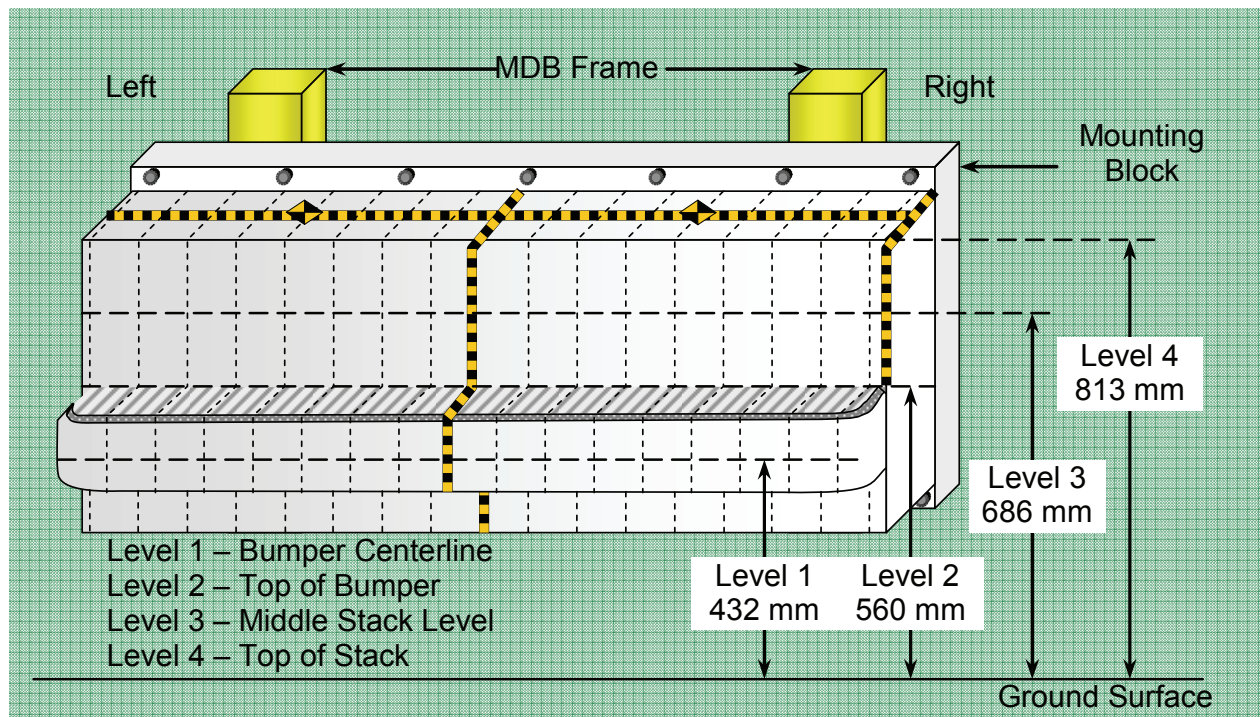


DATA SHEET 11
VEHICLE DAMAGE PROFILE DISTANCES (DPD)



DPD MEASUREMENTS				
	DPD measurement (mm)	Pre test (mm)	Post test (mm)	Crush (mm)
1	-150	167	167	0
2	330	160	314	154
3	810	156	318	162
4	1290	147	372	225
5	1770	138	266	128
6	2250	131	131	0

DATA SHEET 12
DEFORMABLE BARRIER STATIC CRUSH

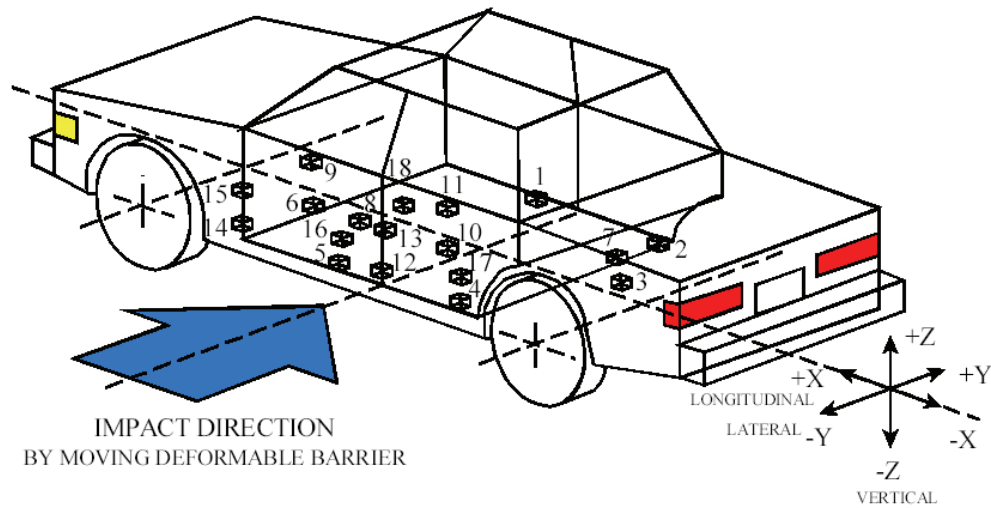


DEFORMABLE BARRIER FACE SUMMARY		
Barrier face manufacturer		Plascore
Serial number		A0606717
Level	Description	Maximum crush
1	Center of bumper	145
2	Top of bumper	160
3	Middle of stack	177
4	Top of stack	179
Maximum post test intrusion is 179 mm at level 4		

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	110	119	179	125	114	108	100	94	86	85	82	81	80	86	96	109	160
3	157	177	149	108	107	109	109	93	70	69	71	73	74	76	83	88	117
2	133	160	138	122	116	110	107	103	99	97	94	94	96	94	97	98	99
1	140	145	142	120	103	92	92	92	88	86	84	82	82	81	80	82	80

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	2548	764	11
2	Right sill at rear seat	1741	767	0
3	Rear floor pan above axle	1060	0	-304
4	Left sill at rear door	1731	-742	-3
5	Left sill at front door	2498	-747	2
6	Left front door C/L	†	†	†
7	Rear occupant compartment	1752	390	-230
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	2109	-776	-299
13	Left middle b-pillar	2064	-790	-653
14	Left lower a-pillar	3076	-809	-309
15	Left middle a-pillar	3064	-815	-573
16	Front seat track	2251	-614	-158
17	Rear seat track or structure	1796	-487	-152
18	Vehicle CG	2455	24	-307

Origin

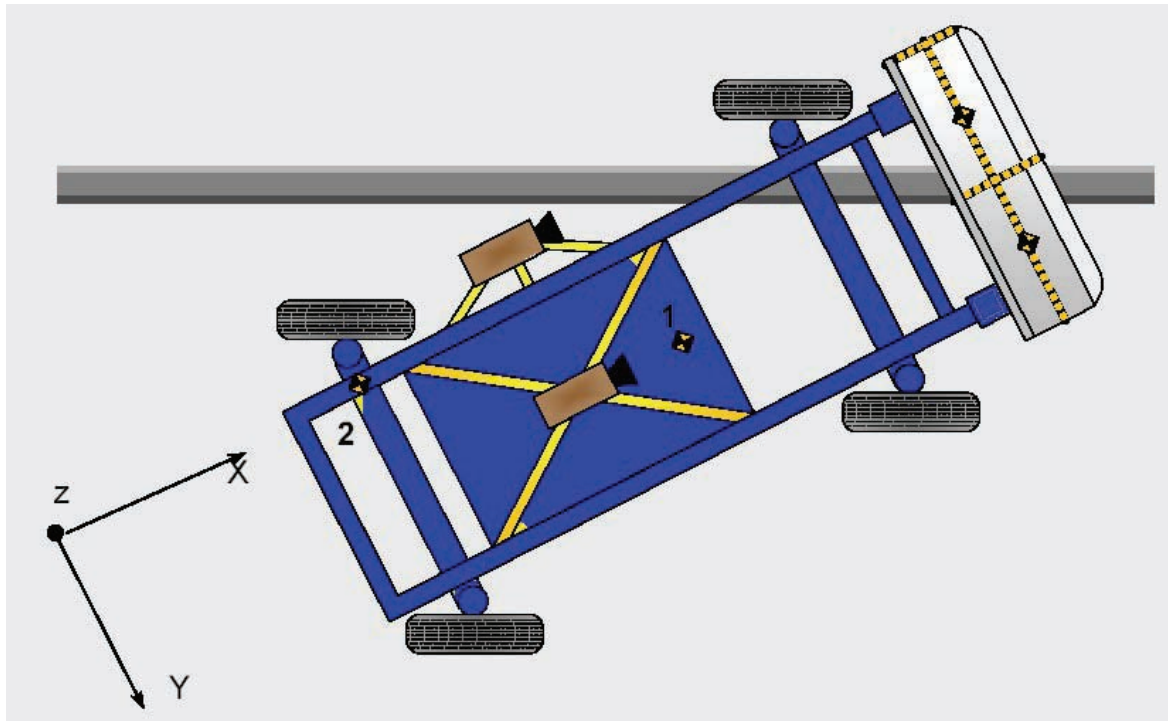
X Rear bumper
 Y Midline of vehicle
 Z Top of rear bumper

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

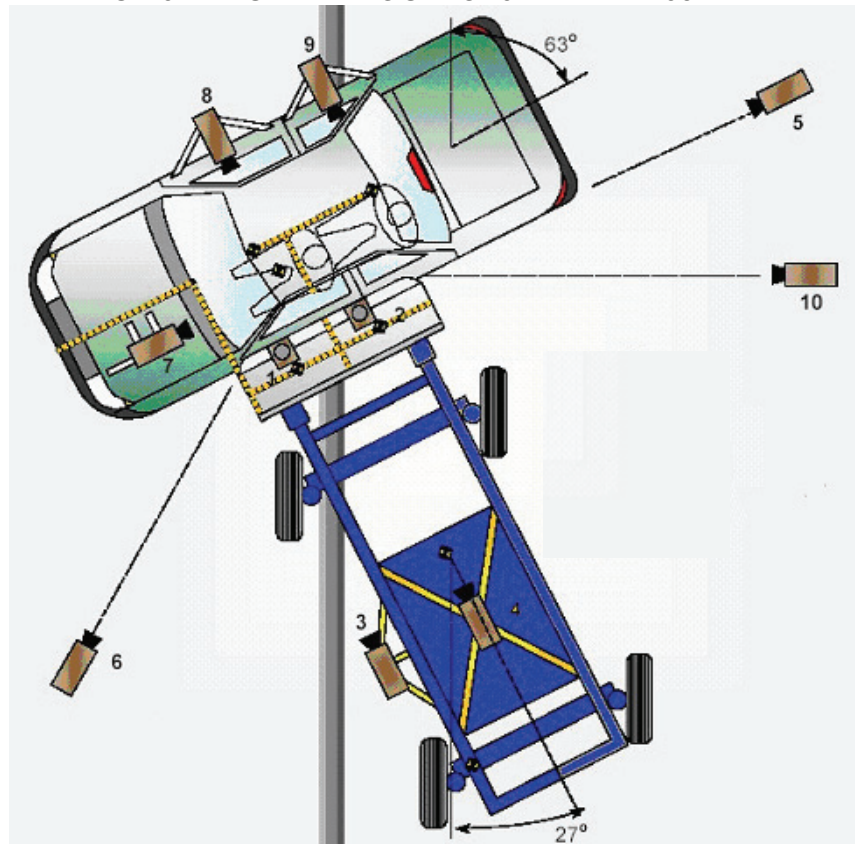
Origin

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	-307	-651	-4831	90	12.5	1000
2	Overhead close-up view of impact plane	-608	-136	-4359	90	16	1000
3	MDB onboard close-up view of impact point†	-2117	-88	-53	0.9	25.4	1000
4	MDB onboard view of driver dummy	-2317	827	-632	3.8	13	1000
5	Right side ground level overall view	-635	11976	-917	4.8	50	1000
6	Left side ground level overall view	-1787	-3811	-906	11.3	25	1000
7	Test vehicle onboard driver front view	484	-271	-441	12.0	25	1000
8	Test vehicle onboard driver side view	1744	752	-365	13.6	12.5	1000
9	Test vehicle onboard passenger side view	1739	1398	-377	14.0	12.5	1000
10	Real-time film coverage of test	-	-	-	-	-	-

Origin

X

Y

Z

Impact Point

Impact Point

Impact Point

† Camera triggered pre-impact

Orientation

X

Y

Z

+(X) Forward

+(Y) Right

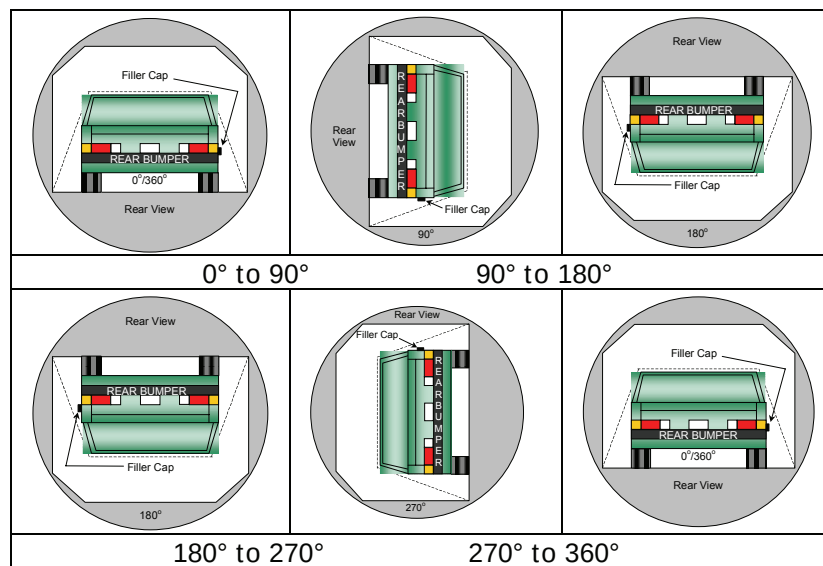
+(Z) Down

DATA SHEET 16
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 19° C Test Time: 2:00 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	302	365
90° to 180°	64	300	364
180° to 270°	67	300	367
270° to 360°	63	344	407

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-9	Pre test left side view of test vehicle	A-8
A-10	Post test left side view of test vehicle	A-8
A-11	Pre test left rear $\frac{3}{4}$ view of test vehicle	A-9
A-12	Post test left rear $\frac{3}{4}$ view of test vehicle	A-9
A-13	Pre test rear view of test vehicle	A-10
A-14	Post test rear view of test vehicle	A-10
A-15	Pre test right rear $\frac{3}{4}$ view of test vehicle	A-11
A-16	Post test right rear $\frac{3}{4}$ view of test vehicle	A-11
A-17	Pre test right side view of test vehicle	A-12
A-18	Post test right side view of test vehicle	A-12
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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
A-28	Post test front $\frac{3}{4}$ view of left side doors	A-17
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A-42	Post test driver contact locations (2)	A-24
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A-44	Post test passenger, left side view	A-25
A-45	Pre test passenger shoulder clearance	A-26
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Figure	Photograph Description	Page
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A-50	Post test passenger contact locations (2)	A-28
A-51	Pre test front view of MDB barrier face	A-29
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
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A-62	FMVSS301 270 degrees	A-34
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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

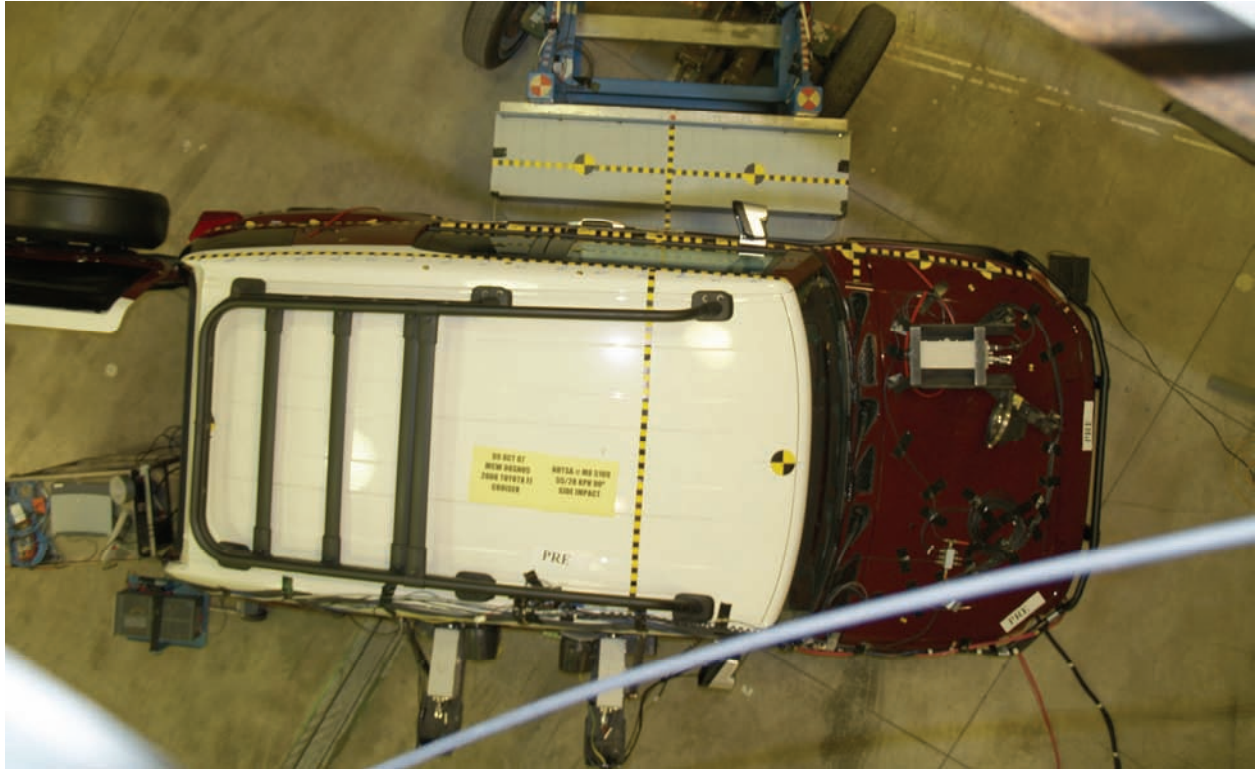


Figure A-21: Pre test overhead view



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

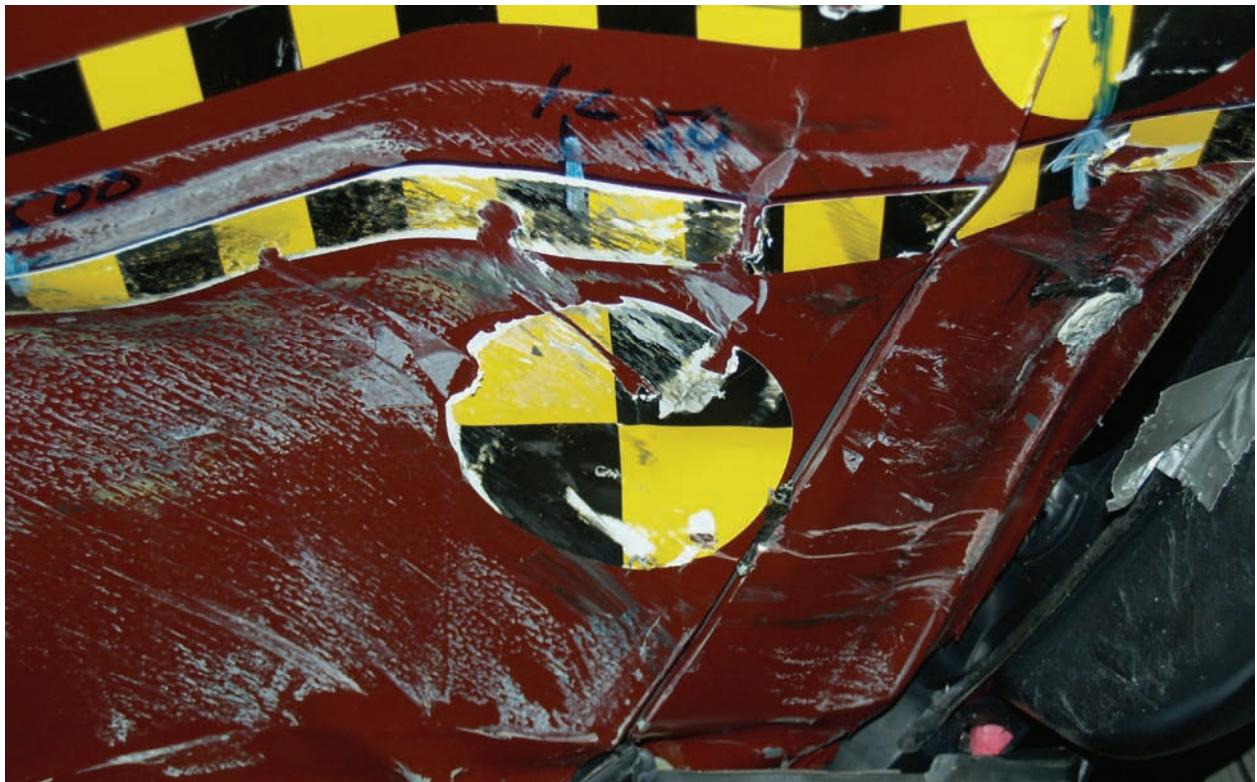


Figure A-26: Post test impact point



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

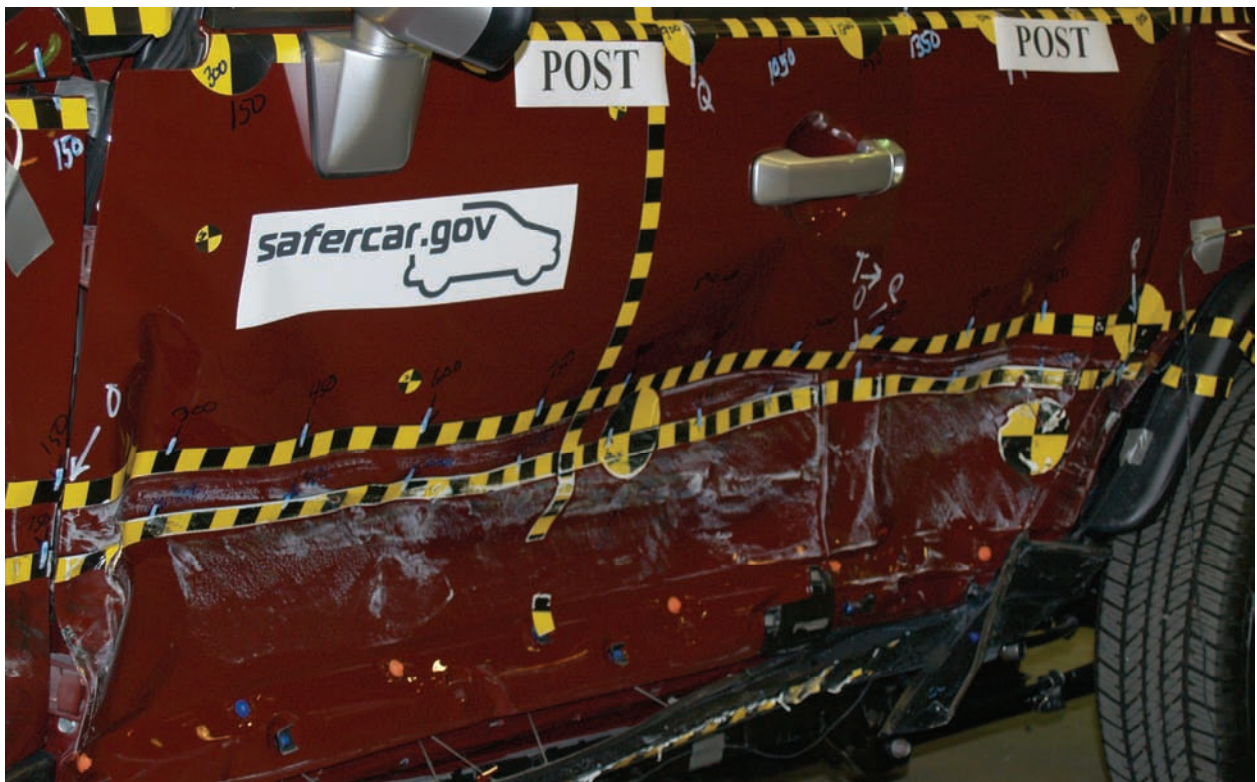


Figure A-32: Post test left front door



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)

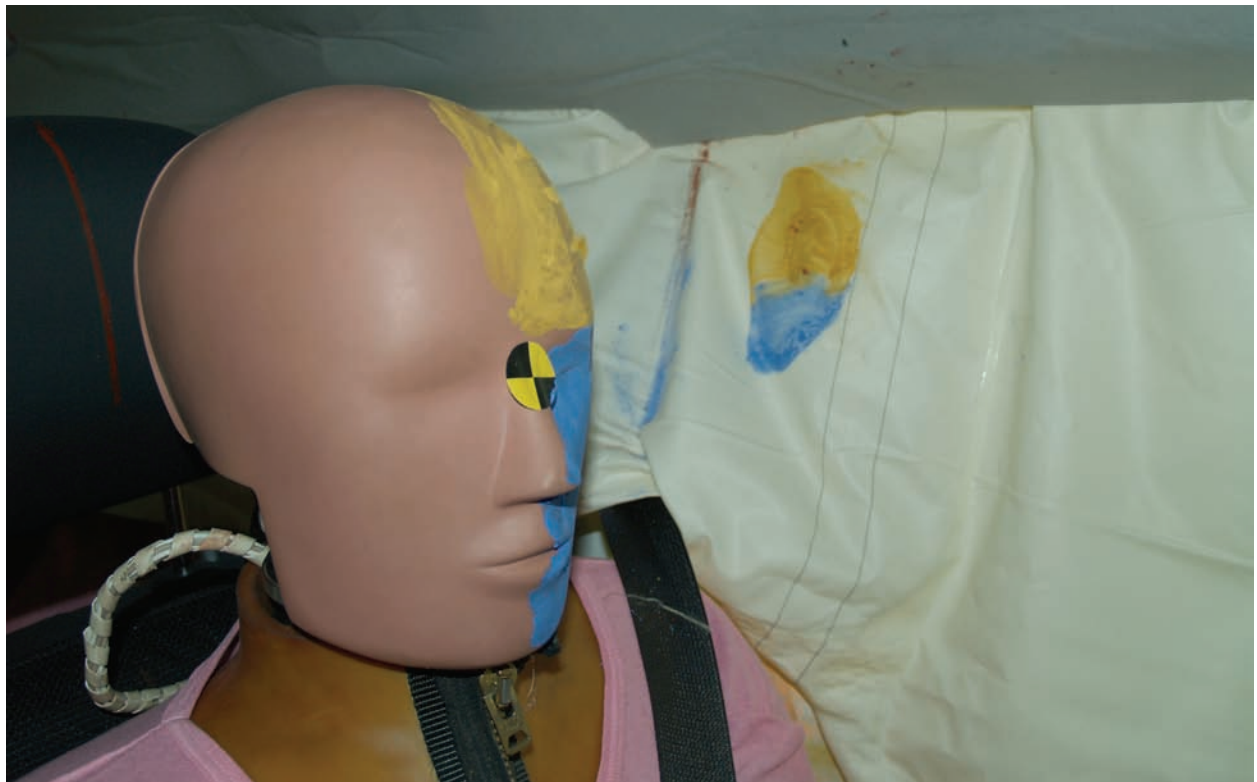


Figure A-42: Post test driver contact locations (2)



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

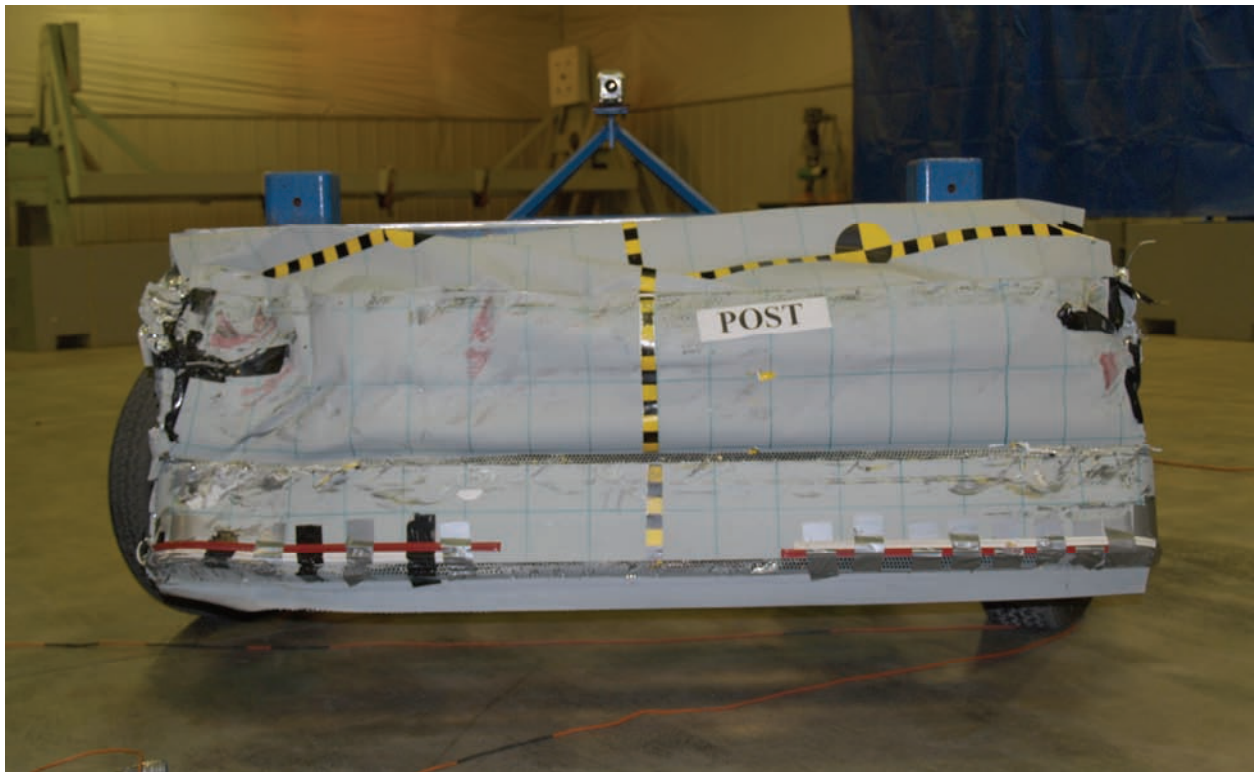


Figure A-52: Post test front view of MDB barrier face

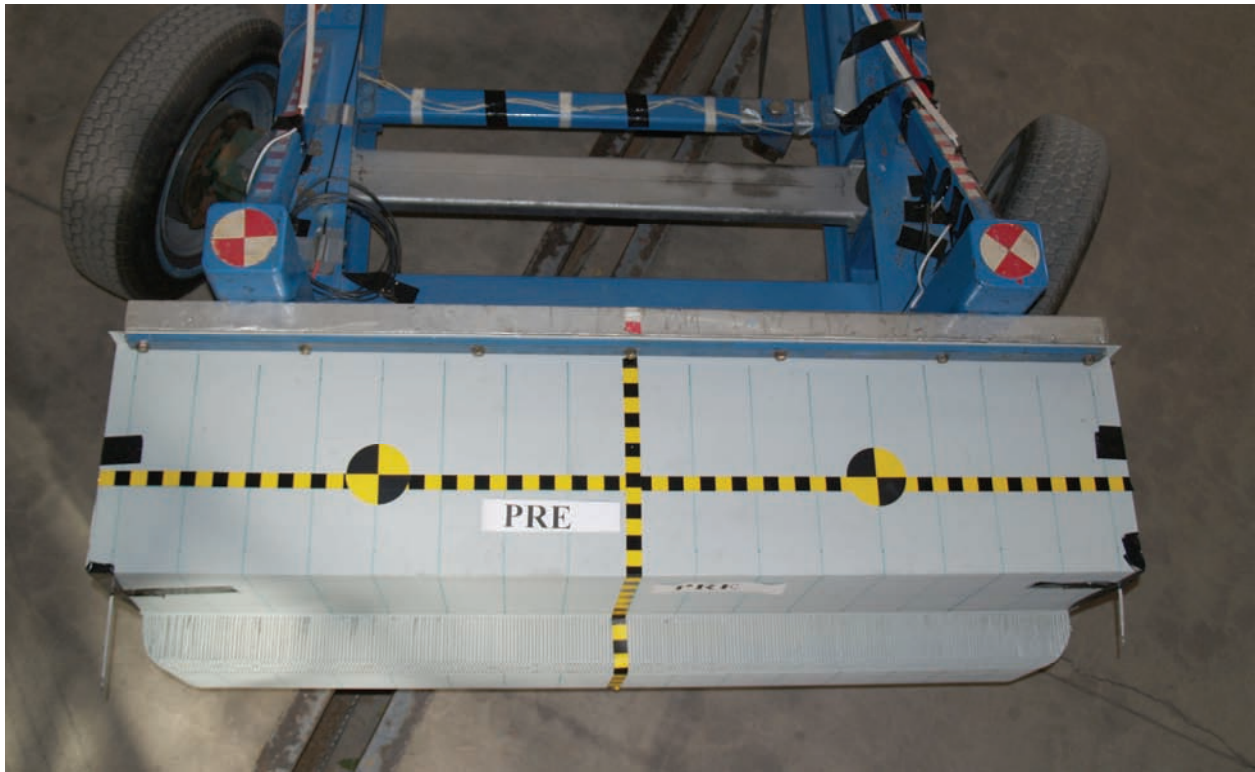


Figure A-53: Pre test overhead view of MDB barrier face



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

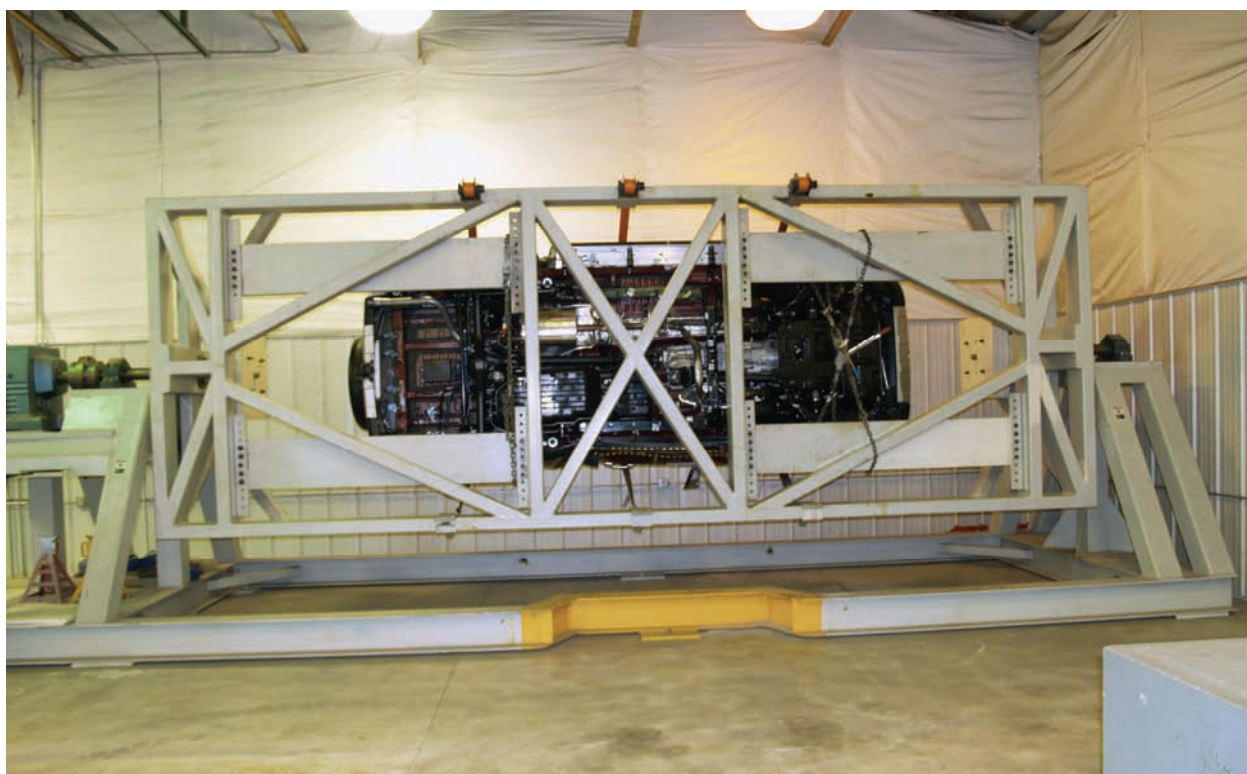


Figure A-60: FMVSS 301 90 degrees



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(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

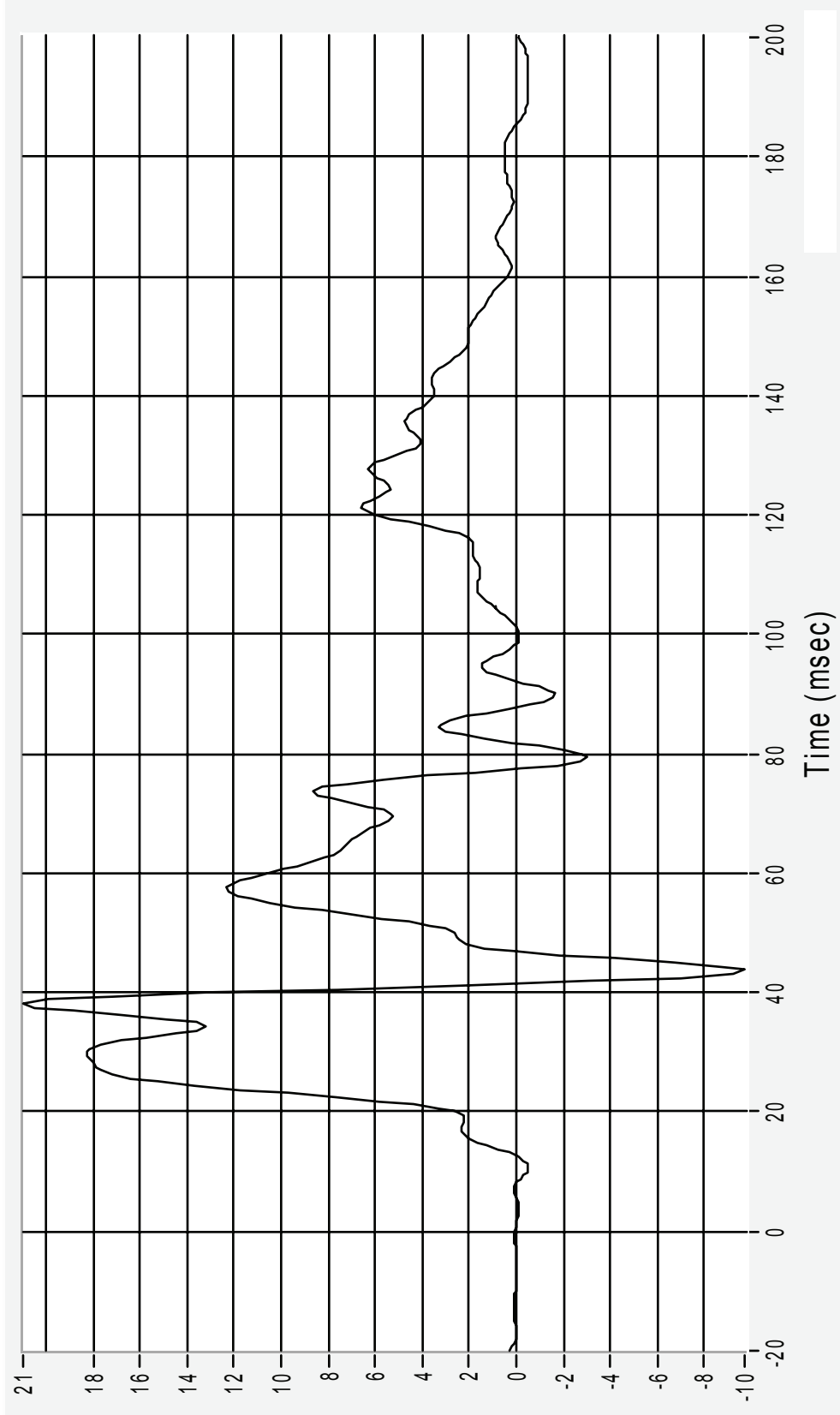
The following dummy, vehicle, and MDB response data can be found in the R&D section of the NHTSA website at: www-nrd.nhtsa.dot.gov/database/nrd-11/veh_db.html.

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	21.0	G	at	38.1	msec
Min	-9.7	G	at	43.8	msec

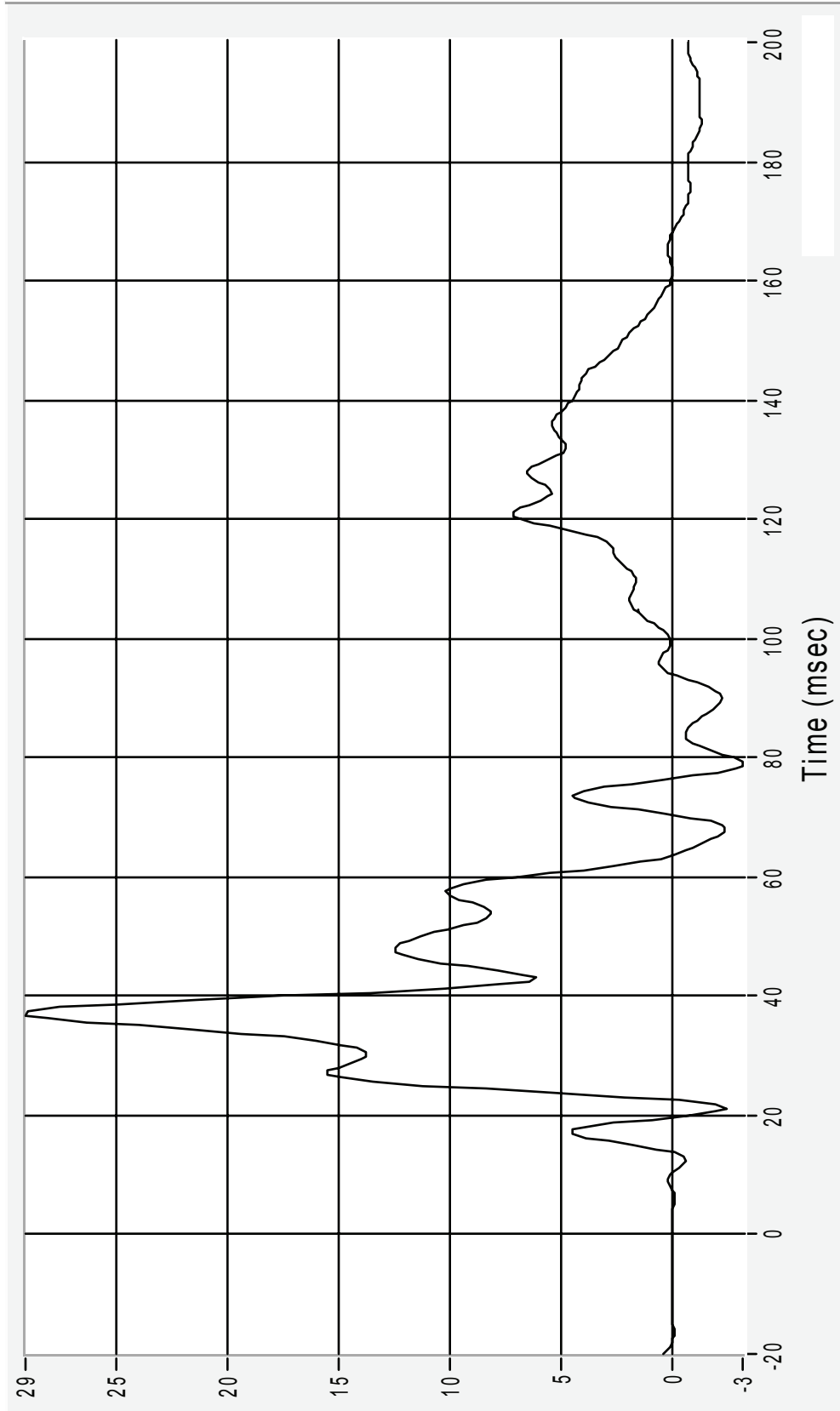


08SN05 - 2008 TOYOTA FJ Cruiser UTILITY VEHICLE
 9 October 2007

Medical College of Wisconsin
 Vehicle Crashworthiness Lab

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

Max	29.1	G	at	36.9	msec
Min	-3.2	G	at	78.8	msec



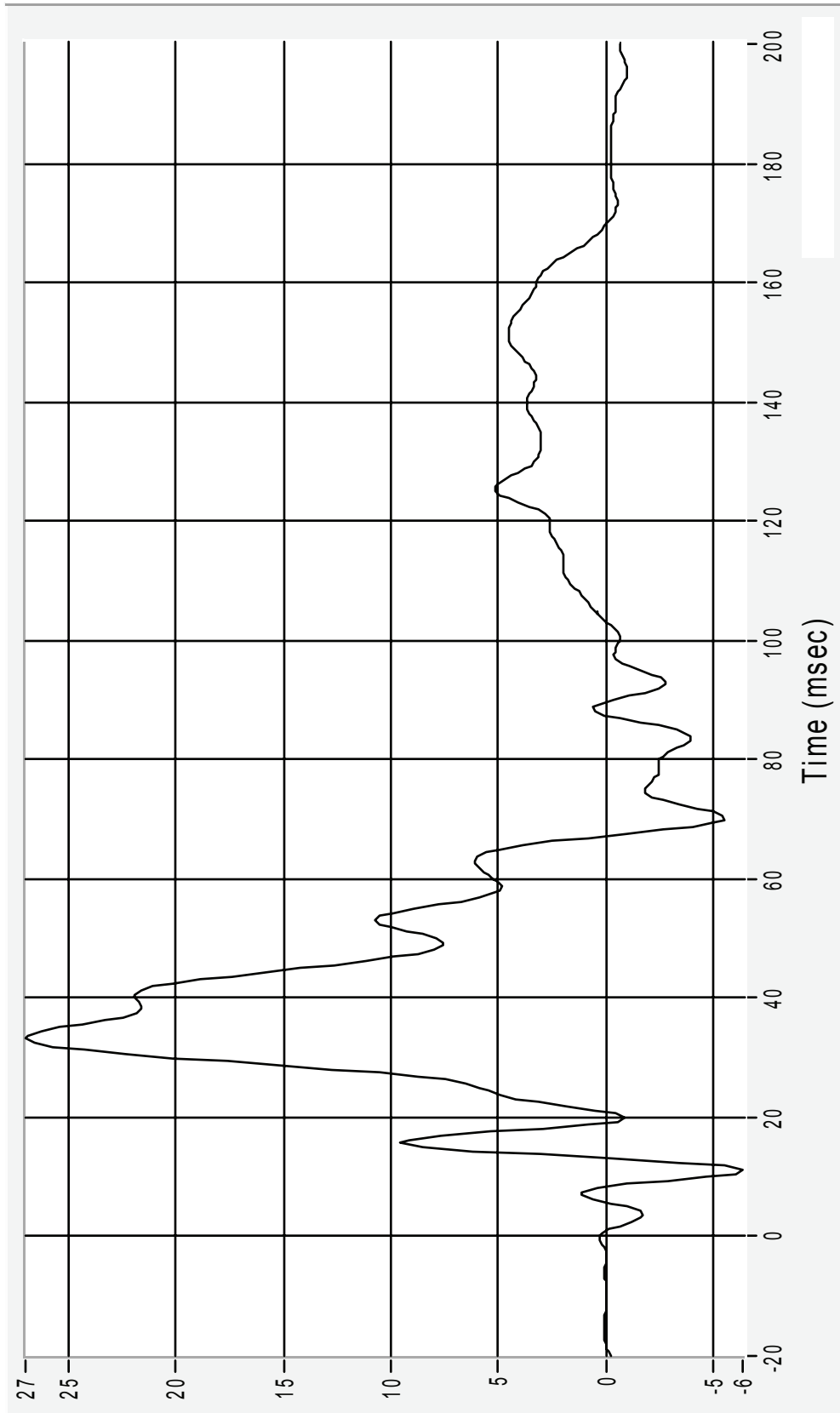
08SN05 - 2008 TOYOTA FJ Cruiser UTILITY VEHICLE

9 October 2007

Medical College of Wisconsin
 Vehicle Crashworthiness Lab

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

Max	27.0	G	at	33.1	msec
Min	-6.3	G	at	11.2	msec



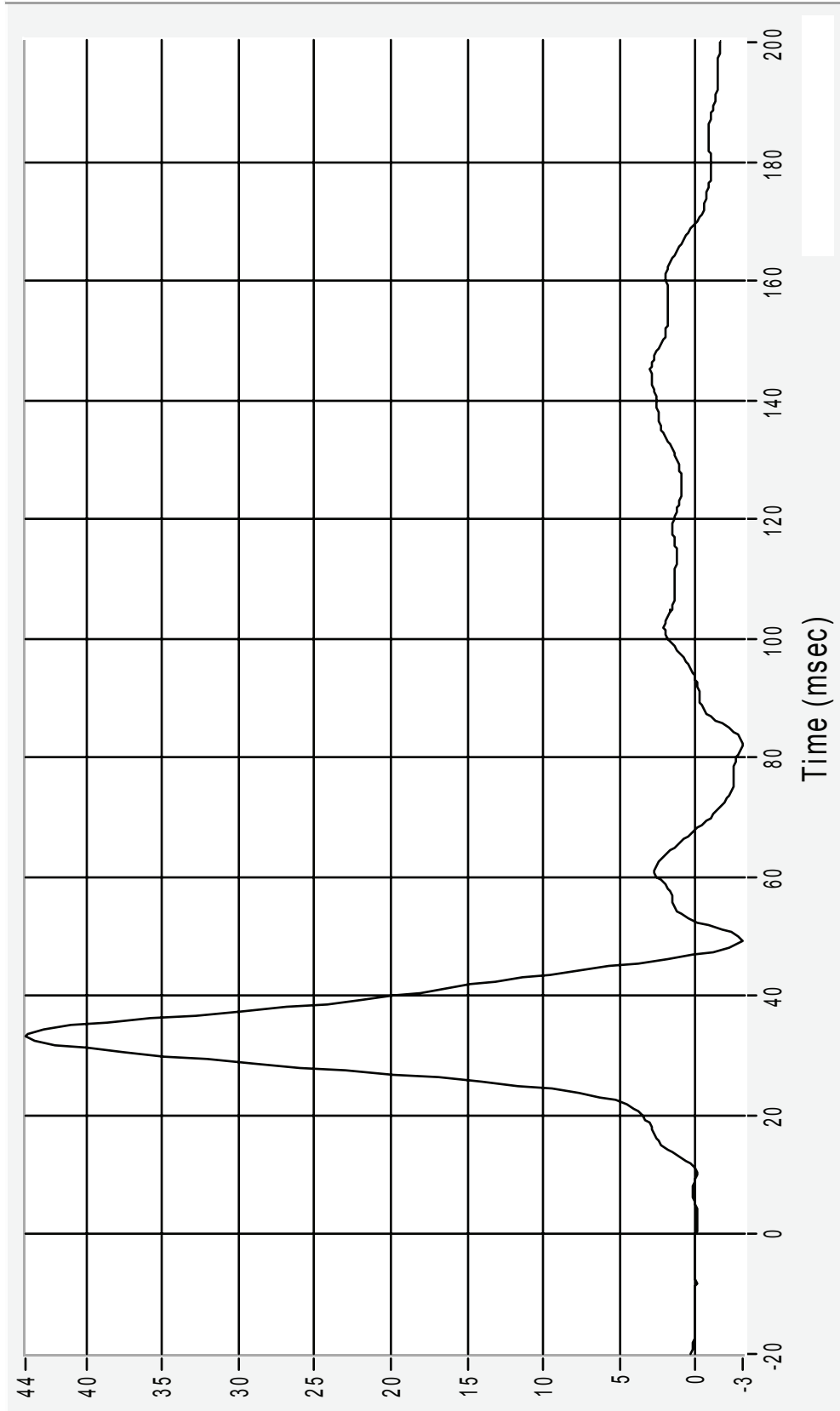
08SN05 - 2008 TOYOTA FJ Cruiser UTILITY VEHICLE

9 October 2007

Medical College of Wisconsin
 Vehicle Crashworthiness Lab

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

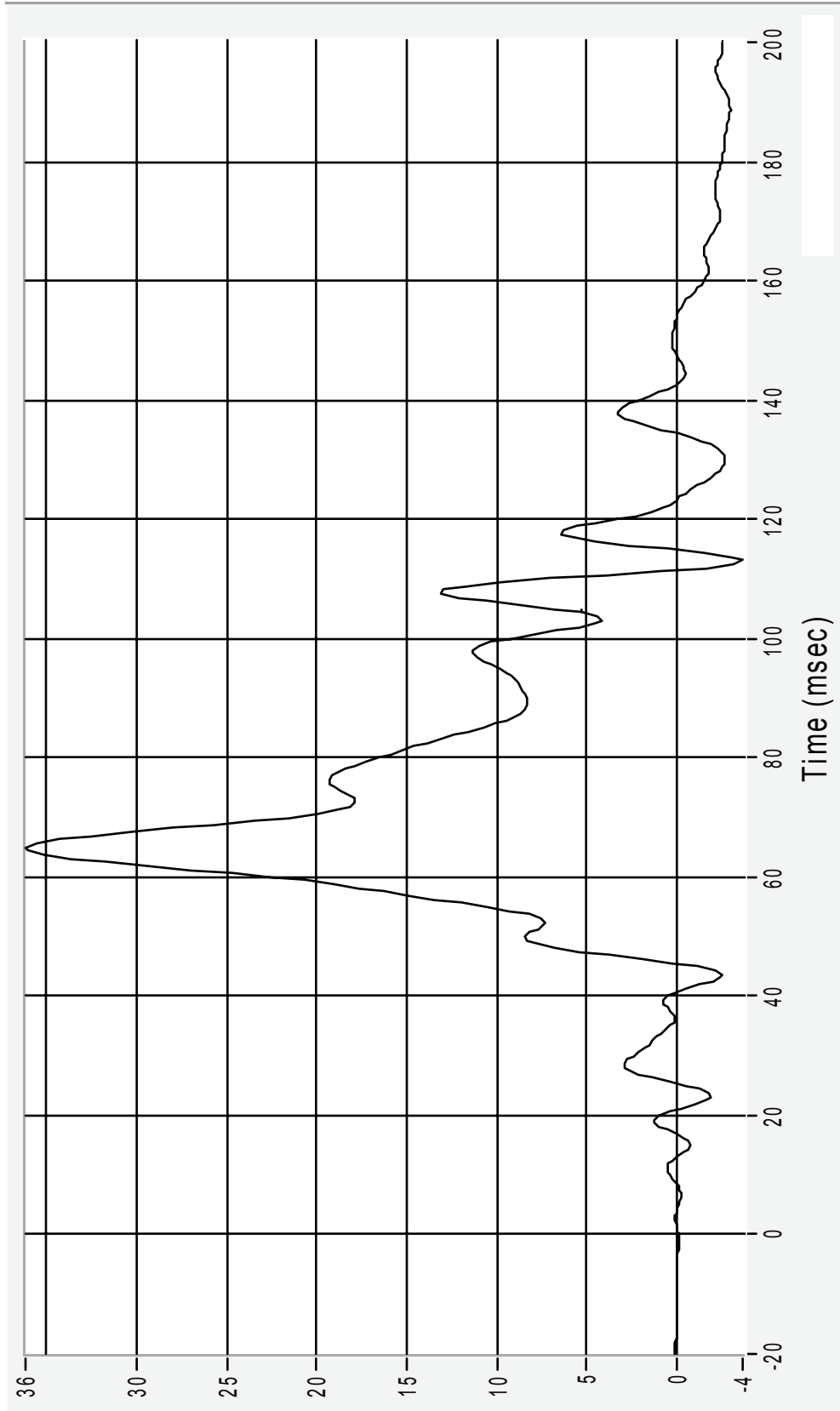
Max	44.0	G	at	33.1	msec
Min	-3.1	G	at	82.5	msec



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Passenger Upper Rib (Y) Acceleration
 Acceleration (G's) FIR100 Max 36.1 G at 65.0 msec
 Min -3.6 G at 113.1 msec

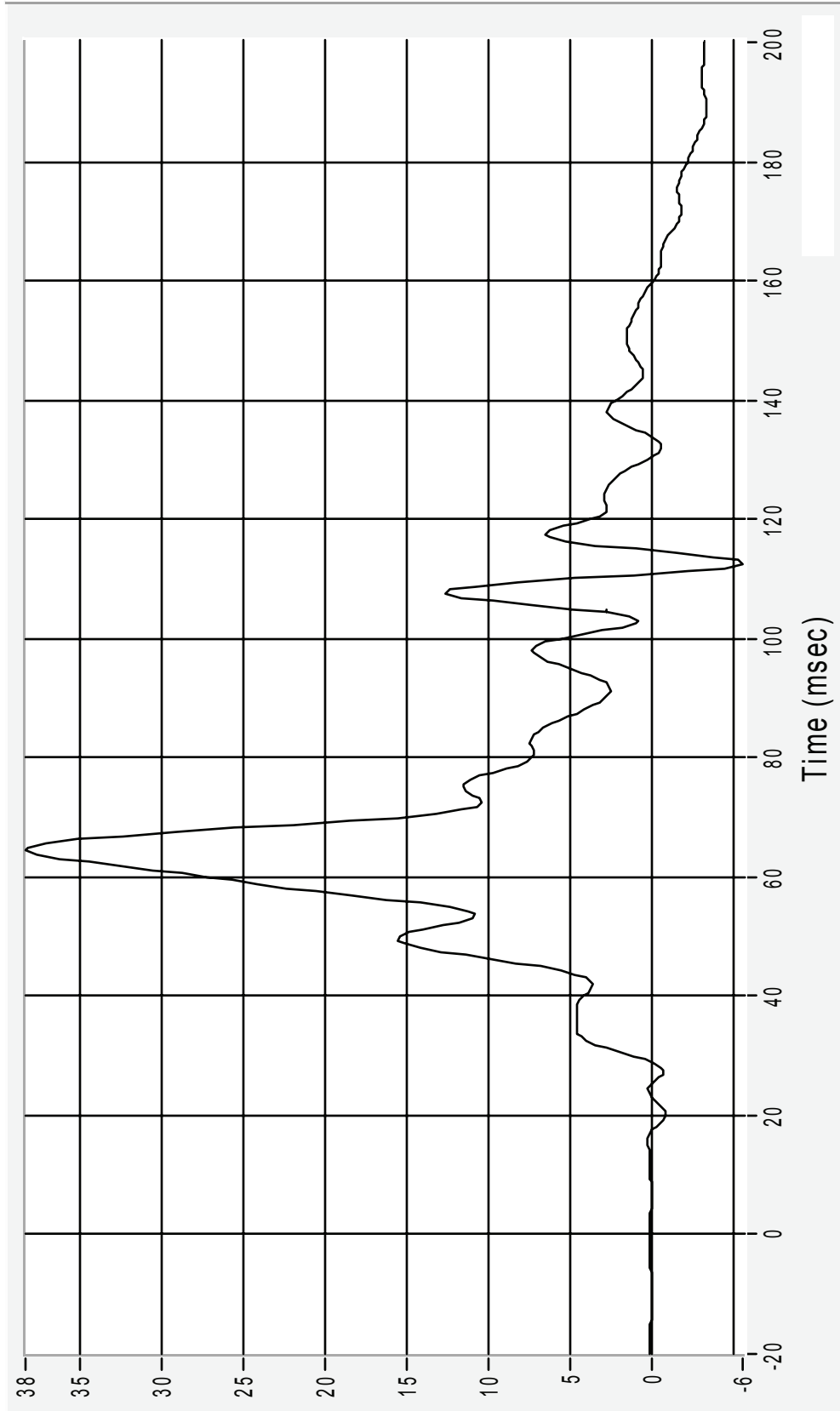


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9 October 2007

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Passenger Lower Rib (Y) Acceleration
 Acceleration (G's) FIR100 Max 38.3 G at 64.4 msec
 Min -5.6 G at 112.5 msec



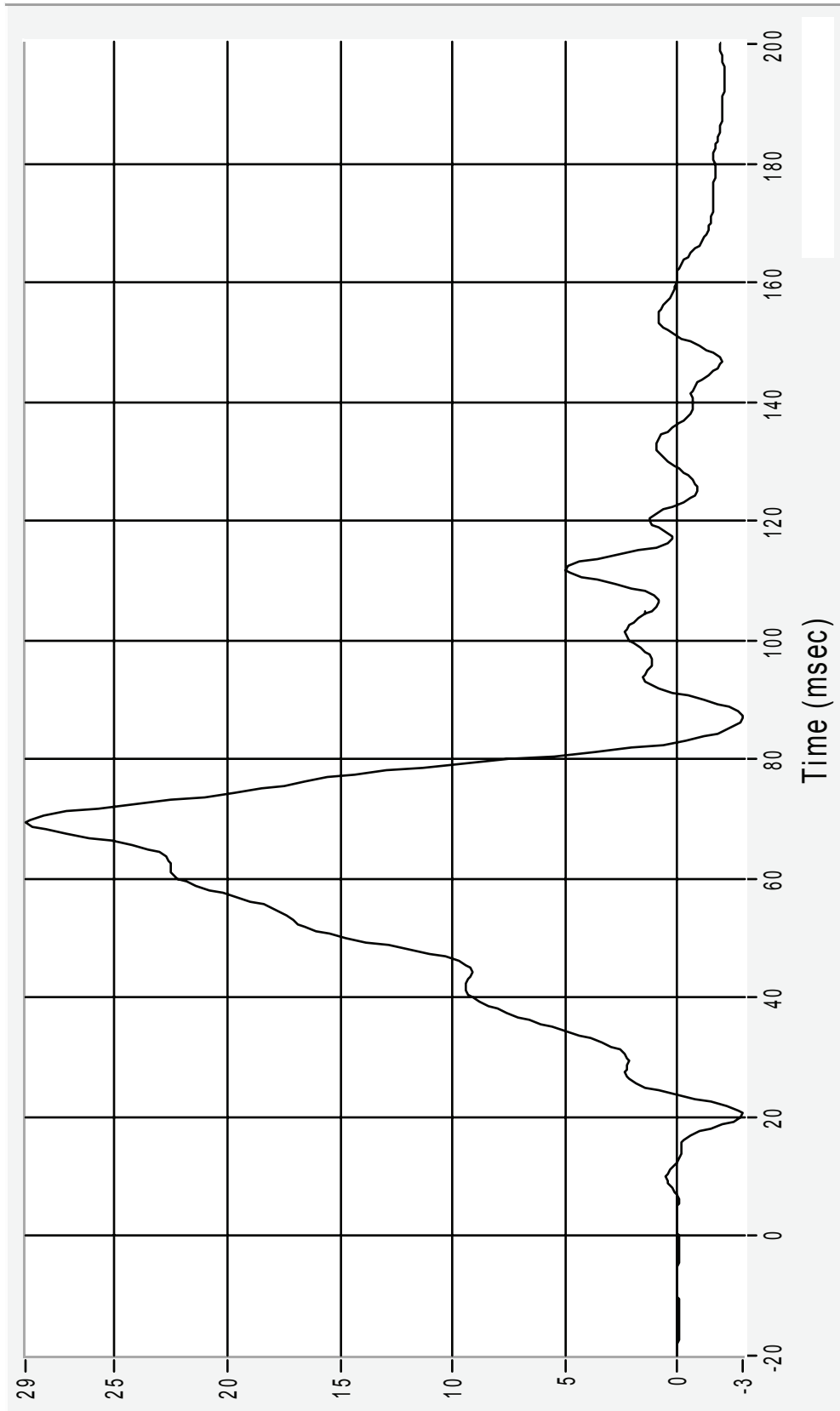
08SN05 - 2008 TOYOTA FJ Cruiser UTILITY VEHICLE

9 October 2007

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

Max	29.0	G	at	69.4	msec
Min	-2.9	G	at	86.9	msec

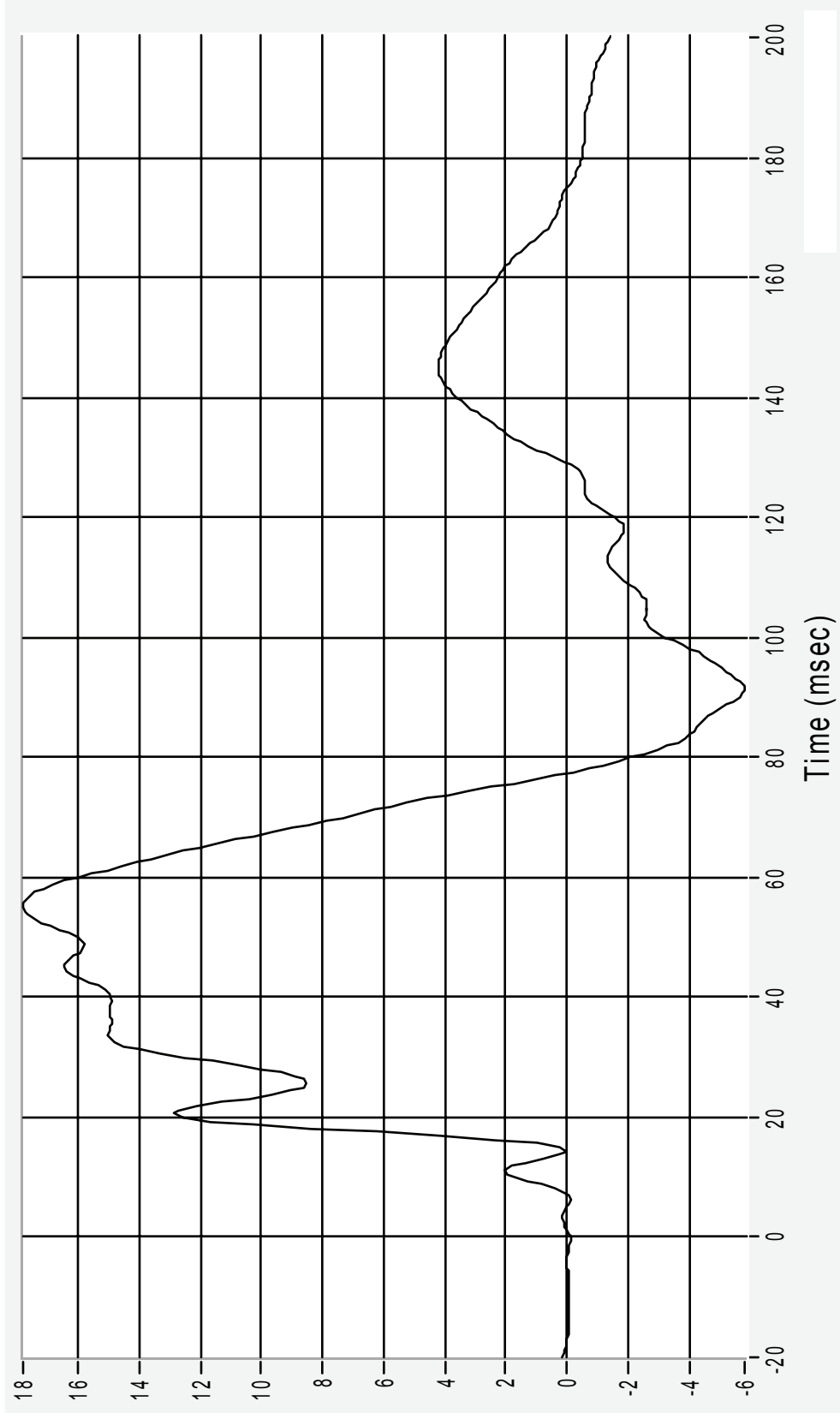


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Passenger Pelvic (Y) Acceleration
 Acceleration (G's) FIR100

Max	17.8	G	at	55.0	msec
Min	-5.8	G	at	91.2	msec



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 9 October 2007

APPENDIX C
DUMMY CALIBRATION DATA

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

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial Number 056Test Sequences 5 and 6

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 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

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	-	5Oct07	22Oct07	7Oct07	17Oct07
Sequential Test Number	-	5	6	4	5
Temperature (°C)	18.9-25.5	20.9	20.0	20.7	20.2
Relative Humidity (%)	10-70	49.6	48.7	45.0	47.6
SH – Seated Height (mm)	889-909	899	906	909	907
RH – Rib Height (mm)	501-521	507	508	515	518
HP – Hip Pivot Height (mm)	99	99/99	99/99	99/99	99/99
RD – Rib From Back Line (mm)	229-241	230	229	229	229
KH – Knee Pivot from Back Line (mm)	511-526	525/526	526/518	526/526	526/525
KV – Knee Pivot to Floor (mm)	490-505	503/500	505/505	505/505	506/505
HW – Hip Width (mm)	356-391	366	360	358	358
THORAX IMPACTS					
Date	-	5Oct07	22Oct07	7Oct07	17Oct07
Sequential Test Number	-	5	6	4	5
Temperature (°C)	18.9-25.5	20.2	20.7	21.0	20.5
Relative Humidity (%)	10-70	50.7	48.6	50.0	48.3
Probe Speed (m/s)	4.21-4.33	4.22	4.24	4.22	4.25
Upper Rib Acceleration (G)	37-46	44.6	44.1	43.8	44.6
Lower Rib Acceleration (G)	37-46	43.5	43.1	38.2	39.0
Lower Spine Acceleration (G)	15-22	21.5	21.6	20.9	21.9
PELVIS IMPACTS					
Date	-	5Oct07	22Oct07	7Oct07	17Oct07
Sequential Test Number	-	5	6	4	5
Temperature (°C)	18.9-25.5	21.1	20.7	21.0	20.6
Relative Humidity (%)	10-70	47.1	46.5	50.7	48.4
Probe Speed (m/s)	4.21-4.33	4.22	4.24	4.22	4.25
Pelvis Acceleration (G)	40-60	56.9	58.7	43.9	41.2
THORACIC SHOCK ABSORBER					
Shock Absorber ID Number	-	1746		31310164	
Damper Setting	1-10	5.75		5	
Date	-	4Oct07		5Oct07	
Sequential Test Number	-	2		2	
Temperature	18.9-25.5	20.0		19.7	
Relative Humidity	10-70	37.0		38.2	
Probe Speed (m/s) Low	3.05	3.05		3.05	
Force (N)	836 – 1125	1074.5		1016.8	
Displacement (mm)	30 – 35	30.1		30.8	
Probe Speed (m/s) Middle	4.27	4.27		4.27	
Force (N)	1730 – 2099	1756.5		1740.4	
Displacement (mm)	32 – 37	32.8		33.0	
Probe Speed (m/s) High	6.10	6.10		6.10	
Force (N)	3741 – 4448	4019.4		3840.8	
Displacement (mm)	33 - 40	35.3		36.0	

TEST PARAMETER	SPEC	SID HIII/056		SID HIII/058	
		PRE	POST	PRE	POST
ABDOMINAL COMPRESSION					
Date	-	2Oct07	11Oct07	2Oct07	11Oct07
Sequential Test Number	-	5	6	4	5
Temperature (°C)	18.9-25.5	20.2	21.0	20.7	21.1
Relative Humidity (%)	10-70	54.7	38.6	53.7	38.4
Force at 13 mm (N)	104-162	133.5	136.0	136.1	128.6
Force at 19 mm (N)	163-221	182.7	184.4	192.6	169.2
Force at 25 mm (N)	222-280	239.3	244.7	247.2	228.9
Force at 33 mm (N)	325-391	341.9	343.3	345.2	326.7
LUMBAR FLEXION					
Date	-	2Oct07	11Oct07	2Oct07	11Oct07
Sequential Test Number	-	5	6	4	5
Temperature (°C)	18.9-25.5	21.3	20.9	20.5	20.8
Relative Humidity (%)	10-70	54.4	38.9	46.5	39.5
Force at 0° (N)	0-26.7	23.2	0	23.1	0
Force at 0° (N)	97.8-151.2	123.3	105.6	112.6	124.6
Force at 0° (N)	151.2-204.6	163.7	154.7	182.3	160.1
Force at 0° (N)	204.6-258	208.1	212.1	216.5	207.4
Return Angle	12° Maximum	4.6	6.8	2.9	0.8
HYBRID III LATERAL NECK					
Date	-	3Oct07	18Oct07	3Oct07	16Oct07
Sequential Test Number	-	5	6	4	5
Temperature (°C)	18.9-25.5	20.0	22.2	20.5	21.6
Relative Humidity (%)	10-70	49.2	53.0	44.5	51.7
Pendulum Speed (m/s)	6.89-7.13	6.92	7.10	7.11	7.10
Pendulum Pulse 10ms (m/s)	1.96-2.55	2.02	2.21	2.25	2.08
Pendulum Pulse 20ms (m/s)	4.12-5.10	4.43	4.74	5.04	4.66
Pendulum Pulse 30ms (m/s)	5.73-7.01	6.33	6.89	6.91	6.81
Pendulum Pulse 40 –70 ms (m/s)	6.27-7.64	6.95	7.23	6.86	7.06
Max Head rotation (deg)	66-82	76.1	81.9	80.5	81.6
Head angle crosses zero (ms)	58-67	63.9	65.1	62.2	62.2
Peak Moment (Nm)	73-88	83.4	83.0	75.2	81.7
Moment crosses zero (ms)	49-63	52.2	57.9	56.0	57.1
Max rotation wrt pk. moment (ms)	2-15	3.12	1.84	5.84	4.24
HYBRID III LATERAL HEAD DROP					
Date	-	2Oct07	11Oct07	2Oct07	11Oct07
Sequential Test Number	-	5	6	4	5
Temperature (°C)	18.9-25.5	20.7	19.7	20.2	20.0
Relative Humidity (%)	10-70	47.8	40.1	50.2	38.1
Resultant Max (G)	120-150	124.3	125.0	130.3	130.7
Longitudinal Max (G)	<15	9.37	5.15	5.42	6.61

**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