Report Number: NCAP-TRC-02-002

New Car Assessment Program
"Side Impact Testing"

Honda of Canada Mfg.

2002 Acura MDX Wagon

NHTSA Number: M25302

Transportation Research Center Inc.

10820 State Route 347

P. O. Box B-67

East Liberty, OH 43319

December 19, 2001

Final Report

U. S. Department Of Transportation

National Highway Traffic Safety Administration

Office of Crashworthiness Standards

400 Seventh Street, S. W.

Room No. 5313 (NPS-10)

Washington, DC 20590

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Test Performed By: Michael S. Postle, Engineering Technician

Report Approved By: _____

Virginia L. Watters, Project Manager

Transportation Research Center Inc.

Approval Date: _____

FINAL REPORT ACCEPTANCE BY OCS:

Accepted By: _____

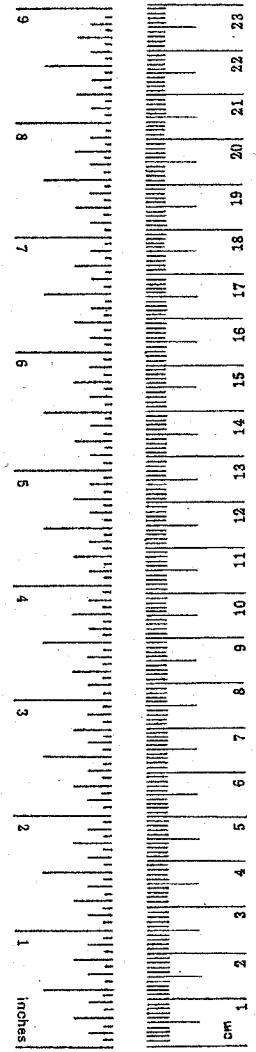
Acceptance Date: _____

METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

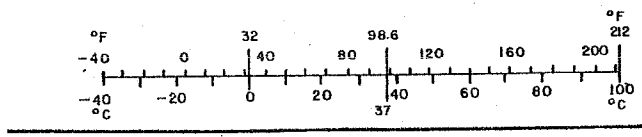
Symbol	When You Know	Multiply by	To Find	Symbol
	LENGTH			
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
	AREA			
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
	MASS (weight)			
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
	VOLUME			
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
	TEMPERATURE (exact)			
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

*1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures. Price $2.25, SD Catalog No. C13.10:286.



Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
	LENGTH			
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
	AREA			
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
	MASS (weight)			
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
	VOLUME			
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
	TEMPERATURE (exact)			
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



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15. Supplemental Notes

16. Abstract

This 55/28 km/h 270° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject vehicle, a 2002 Acura MDX Wagon, in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure Side NCAP for the generation of consumer information on vehicle side crash protection. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on December 6, 2001.

The impact velocity of the Moving Deformable Barrier (MDB) was 62.1 km/h, and the ambient temperature at the struck (Driver's side) side of the target vehicle at the time of impact was 21° C. The target vehicle's post-test maximum crush was 315 mm at Level 3.

The test or target vehicle's performance is given below (data filtered FIR100):

	Front SID		Rear SID	
Left Upper Rib Acceleration:	19.1	g's	28.5	g's
Left Lower Rib Acceleration:	18.2	g's	35.5	g's
Lower Spine Acceleration:	28.9	g's	44.5	g's
Thoracic Trauma Index, (TTI):	24.0	g's	40.0	g's
Pelvis Acceleration (PEV):	49.5	g's	54.0	g's

The two 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 side impact event.

17. Key Words	18. Distribution Statement
New Car Assessment Program (NCAP) Side Impact MDB Side Impact Dummy (SID)	Copies of this report are available from: NHTSA Technical Reference Division Room 5108 (NAD-52), 400 Seventh Street, S.W. Washington, DC 20590 Telephone No. (202) 366-4946 Attn: Robert Hornicle

19. Security Classification (of this report)	20. Security Classification (of this page)	21. Number of Pages	22. Price
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Table of Contents

Section 1

Purpose and Test Procedure

Purpose and Test Procedure

This side impact test is part of the FY02 New Car Assessment Program Side Impact Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-98-D-12001. The purpose of this test was to generate comparative side impact protection in a 2002 Acura MDX wagon. The test was conducted in accordance with the Office of Crashworthiness Standards' Laboratory Test Procedure dated July 1997.

Section 2

Summary of Side Impact Test

Summary of Side Impact Test

A 2002 Acura MDX wagon was impacted on the driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the monorail at a velocity of 62.1 km/h (38.6 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, Ohio on December 6, 2001. Pre-test and post-test photographs of the test vehicle, the moving deformable barrier (MDB), and the side impact dummies (SIDs) are included in Appendix A.

Two belt-restrained Side Impact Dummies (SIDs) were placed in the driver (Pos. #1) and left rear (Pos. #4) designated seating positions of the target vehicle according to the instructions specified in the OCS Side Impact Laboratory Test Procedure dated July 1997. Both SIDs were certified prior to this test. The side impact test was documented by one real-time camera and 9 high-speed cameras. Camera locations and other pertinent camera information are included in this report.

The target vehicle was equipped with 3-point safety belts at outboard seating positions, and frontal and seat-mounted side airbags at the driver and right front passenger positions.

The SIDs were instrumented with the following accelerometers:

1. Left Upper Rib (LUR) uniaxial and redundant accelerometer (Y-direction)
2. Left Lower Rib (LLR) uniaxial and redundant accelerometer (Y-direction)
3. Lower Thoracic Spine (T_{12}) uniaxial and redundant accelerometer (Y-direction)
4. Pelvic (PEV) section uniaxial and redundant accelerometer (Y-direction)
5. Head (HED) triaxial accelerometers (X-Y-Z-directions)

A summary of the side impact dummy (SID) configuration and verification test data can be found in Appendix C. A total of 59 channels of data were recorded. Appendix B contains the vehicle, MDB, and dummy response data traces.

The following table summarizes the results of the test.

Injury Criteria	Front SID	Rear SID
TTI (g)	24.0	40.0
PEV (g)	49.5	54.0

Data Acquisition Explanations

The vehicle's left front door on centerline Y-axis acceleration data channel, LFCYG1, exceeded its full-scale value at approximately 10 milliseconds and lost data after that. This also affected the integrated velocity data channel.

The vehicle's left front door mid-rear Y-axis acceleration data channel, LFMYG1, recorded a data spike that exceeded its full-scale value at approximately 7 milliseconds. This also affected the integrated velocity data channel.

The vehicle's left lower A-post acceleration data channel, LLAYG1, exceeded its full-scale value at approximately 23.2 milliseconds and recorded no valid data after that. This affected the integrated velocity data channel.

The vehicle's left rear seat track, LRTYG1, exceeded its full-scale value at approximately 40 milliseconds and lost data after that. This affected the integrated velocity data channel.

Section 3

Vehicle Test Data

Data Sheet 1
General Test Vehicle Parameter Data

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302

Test Vehicle Information:

Year/Make/Model/Body: 2002 Acura MDX Wagon

Vehicle Body Color: Burgundy VIN: 2HNYD18282H500788

Vehicle NHTSA No.: M25302 Build Date: 10/01

Engine Data: 6 Cylinders; ____ CID; 3.5 Liters; 3471 cc

Placement: _____ Longitudinal; or _____ Lateral; or _____ Horizontal

Transmission: 5 Speed; ____ Manual; X Automatic; ___ Overdrive

Final Drive: _____ RWD; _____ FWD; X Four-Wheel Drive

Odometer Reading: 210 miles

Options: X A/C; X Power steering; X Power brakes; X Power windows

Data From Vehicle's Tire Placard:

Tire Pressure (at capacity):[1] 220 kPa Front; 220 kPa Rear

Recommended Tire Size: P235/65R17

Tires on Test Vehicle: P235/65R17 Manufacturer: Goodyear

Vehicle Capacity Data:

Number of Occupants:[2] 2 Front; 3 Rear; 2 3rd seat; 7 Total

Type of Front Seats: X Bucket; ____ Bench; ____ Split bench

Type of Front Seat Back: _____ Fixed; X Adjustable with X Lever or ____ Knob

Vehicle Max. Capacity Loading = 588 kg (A)

No. of Occupants x 68.04 kg. = 476 kg (B)

Vehicle Cargo Capacity (A-B) = 112 kg

[1] Tire pressure used in test.

[2] Number of occupants not provided on label; number was derived by counting seat belts.

Data Sheet 1 (continued)
General Test Vehicle Parameter Data

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302

Restraint Information:

Driver:	Rear Passenger:
3-point safety belt	3-point safety belt
Frontal airbag (did not deploy)	No airbag
Seat-mounted side impact airbag	

Test Vehicle Delivered Weight With Maximum Fluids:

Left Front	=	593.0 kg	Left Rear	=	430.5 kg
Right Front	=	540.5 kg	Right Rear	=	429.0 kg
Total Front	=	1133.5 kg	Total Rear	=	859.5 kg
Front % of Total Weight	=	56.9 %	Rear % of Total Weight	=	43.1 %
Total Weight	=	1993.0 kg			

Calculation Of Vehicle's Target Test Weight:

Total Test Vehicle Delivered Weight with Max. Fluids	= 1993.0 kg (A)
Maximum Cargo Carrying Capacity of Test Vehicle	= 112.0 kg (B)
Weight of Instrumented Side Impact Dummies (1 or 2 X 80.0 kg)	= 160.0 kg (C)
Test Vehicle Target Weight:[1]	= 2265.0 kg (A+B+C)

Data Sheet 1 (continued)
General Test Vehicle Parameter Data

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302

Fully Loaded Test Vehicle (UDW + 1 or 2 SID(s) + Cargo):

Left Front	=	642.5 kg	Left Rear	=	517.5 kg
Right Front	=	543.0 kg	Right Rear	=	484.0 kg
Total Front	=	1185.5 kg	Total Rear	=	1001.5 kg
Front % of Total Weight	=	54.2 %	Rear % of Total Weight	=	45.8 %
Total Weight	=	2187.0 kg			

As Tested Weight of Test Vehicle (1 or 2 SID(s) + Cargo + Equipment & Instrumentation):

Left Front	=	639.2 kg	Left Rear	=	534.0 kg
Right Front	=	579.6 kg	Right Rear	=	499.2 kg
Total Front	=	1218.8 kg	Total Rear	=	1033.2 kg
Front % of Total Weight	=	54.1 %	Rear % of Total Weight	=	45.9 %
Total Weight[1]	=	2252.0 kg			

Test Vehicle Attitude (all dimensions in millimeters):

As Delivered		Fully Loaded		Ready For Test	
Right Front	843	Right Front	837	Right Front	806
Left Front	837	Left Front	820	Left Front	794
Right Rear	853	Right Rear	829	Right Rear	801
Left Rear	855	Left Rear	823	Left Rear	794

Test Vehicle Wheelbase: 2700 mm

C.G. = 1239 mm rearward of front wheel centerline

Total Vehicle Length:

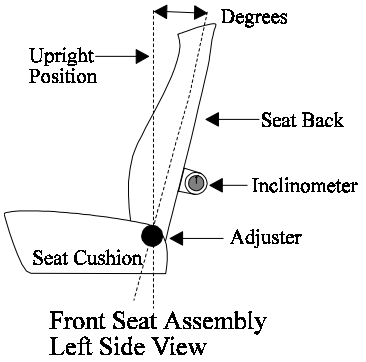
Right Side = 4525 mm Left Side = 4520 mm Centerline = 4770 mm

[1] Total test weight is slightly low because target weight was originally calculated with a lower dummy weight of 77.5 kg each.

Data Sheet 1 (continued)
General Test Vehicle Parameter Data

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302

Nominal Design Riding Position for adjustable driver and passenger seat backs. Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent, if applicable.



Front Seat Assembly
Left Side View

Front Seat Cushion Placement: Mid

Total Length of Fore/Aft Adjustment Travel: 242 mm

Total Number of Adjustment Positions or Detents: N/A

Front Seat Back Adjustment Position: The back was initially adjusted to the manufacturer's instructions of 670 mm from the sun visor's outside bracket bolt to the outer hole for the headrest.

Seat Back Torso Angle: 19.7 degrees

Second Position Seat Placement: Mid

Total Length Of Fore/Aft Adjustment Travel: N/A mm

Seat Back Adjustment Position: 18.8 degrees - The back was adjusted to the 1st locking position rearward of the upright locking position per manufacturer.

Adjustable Steering Column Position: The steering column was tested in the Mid position, 0.59" up from the bottom end of the steering wheel rim set in the lowest (#1) position.

Window Positions:

Right Front: Open Right Rear: Open

Left Front: Closed Left Rear: Closed

Note: Windows will be in closed position on struck side of test vehicle and in open position on opposite side.

Amount of Stoddard Solvent In Fuel Tank:

19.2 liters (fuel tank usable capacity)

17.8 liters used in test (92% - 94% of fuel tank usable capacity)

Location of Impact Point On Test Vehicle Side To Be Impacted:

Wheelbase = 2700 millimeters

Intended impact point is 411 millimeters rearward of front axle centerline
(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 397 millimeters rearward of front axle centerline

Data Sheet 2
Test Vehicle Summary of Results

Vehicle Identification:

Vehicle Year/Make/Model: 2002/Acura/MDX

Body Style: Wagon VIN: 2HNYD18282H500788

NHTSA No.: M25302 Test Date: 12/06/01

Vehicle Overall Length = 4770 mm Overall Width = 1944 mm

Vehicle Test Weight (Pre-Test):

Left Front	=	639.2	kg	Left Rear	=	534.0	kg
Right Front	=	579.6	kg	Right Rear	=	499.2	kg
Total Front	=	1218.8	kg	Total Rear	=	1033.2	kg
Total Weight	=	2252.0	kg				
Wheelbase	=	2700	mm				

Longitudinal C.G. From Center Of Front Axle = 1239 mm

Impact Angle With Respect To Impactor = 90 degrees

Impact Point:

Actual Impact Point is 14 mm Right of nominal impact ref. line (Lateral)

Actual Impact Point is 7 mm Up from nominal impact point (Vertical)

Maximum Exterior Static Crush:

1. Level 1 (380 mm above ground) = 203 mm
2. Level 2 (735 mm above ground) = 313 mm
3. Level 3 (748 mm above ground) = 315 mm
4. Level 4 (1060 mm above ground) = 170 mm
5. Level 5 (1707 mm above ground) = 49 mm

Maximum Post-Test Intrusion = 315 mm

Occupants:	Front Passenger	Rear Passenger
Dummy Identification	269	270
Restraints Used/Deployed	Seat belt, side airbag	Seat belt

Instrumentation:

Number of Vehicle Data Channels: = 26

Number of Cameras: Onboard = 3 Offboard = 7 Total = 10

Data Sheet 3
Moving Deformable Barrier(MDB) Summary

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302

MDB Face Manufacturer And Serial Number:

Plascore, Block #068A0801; Sample ID# 1N323525

Position Of Impactor (MDB) On Monorail:

Crabbed 27° to the right

MDB Specifications:

Overall Width of Framework Carriage	=	1251	mm
Overall Length of MDB (Incl. honeycomb impact face)	=	4013	mm
Wheelbase of Framework Carriage	=	2591	mm
Track of Framework Carriage (Front & Rear)	=	1880	mm
C.G. Location Rearward of Front Axle	=	1123	mm

MDB Weight:

Left Front	=	423.4	kg	Left Rear	=	257.2	kg
Right Front	=	347.4	kg	Right Rear	=	332.8	kg
Total Front	=	770.8	kg	Total Rear	=	590.0	kg
Total MDB Weight	=	1360.8	kg				

Impact Angle (MDB C/L to Target Vehicle C/L) = 90 degrees

Impact Speed = 62.1 km/h

Maximum Static Crush of Honeycomb Impact Face:

1. Row A at Center of Bumper Level	=	232.4	millimeters
2. Row B at Top of Bumper Level	=	128.7	millimeters
3. Row C at Mid Level	=	90.6	millimeters
4. Row D at Top of Stack Level	=	140.1	millimeters

Instrumentation:

Number of MDB Data Channels = 7

Data Sheet 4
Post-Test Observations

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302

Visible Dummy Contact Points:

	Left Front SID	Left Rear SID
Head:	Head restraint	C-pillar, head restraint
Upper Torso:	Airbag	Door panel
Lower Torso:	Door panel	Door panel
Left Knee:	Door panel	Door panel
Right Knee:	None	None

Door Opening:

	Left Side	Right Side
Front:	Jammed shut	Closed & Operational
Rear:	Jammed shut	Close & Operational

MDB Distance From Target Impact Point:

Vertical: 7 mm Up from target

Horizontal: 14 mm Right from target

Arm Rest Locations:

Front: Fixed position in console

Rear: Remained up post-test

Seat Movement:

Front: None

Rear: Fixed

Glazing Damage:

Windshield: Cracked near left A-pillar

Window: None

Pillar Separation: No

Sill Separation: No

Other Notable Impact Effects:

The driver and passenger frontal airbags did not deploy.

Section 4

Occupant and Vehicle Information

Data Sheet 5

SID Instrumentation Data

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302

TEST NUMBER: 011206 DRIVER DUMMY SERIAL NUMBER: 269

	POSITIVE DIRECTION		NEGATIVE DIRECTION	
HEAD ACCELERATION				
LONGITUDINAL	4.5 g	@ 49.0 ms	10.9 g	@ 103.4 ms
LATERAL	14.2 g	@ 91.0 ms	3.2 g	@ 31.0 ms
VERTICAL	17.9 g	@ 74.9 ms	0.3 g	@ 0.0 ms
RESULTANT	20.4 g	@ 75.6 ms		
HIC	47 from 67.2 to 103.2 ms			
LEFT UPPER RIB ACCELERATION				
LATERAL (P)	19.1 g	@ 58.8 ms	4.5 g	@ 88.8 ms
LATERAL (R)	18.8 g	@ 58.1 ms	4.8 g	@ 88.8 ms
LEFT LOWER RIB ACCELERATION				
LATERAL (P)	18.2 g	@ 41.2 ms	4.9 g	@ 88.8 ms
LATERAL (R)	18.8 g	@ 41.2 ms	4.9 g	@ 88.8 ms
TTI d (P)	24.0			
TTI d (R)	24.1			
LOWER SPINE ACCELERATION				
LATERAL (P)	28.9 g	@ 46.3 ms	3.0 g	@ 90.0 ms
LATERAL (R)	29.5 g	@ 46.3 ms	2.8 g	@ 90.6 ms
PELVIS ACCELERATION				
LATERAL (P)	49.5 g	@ 41.2 ms	13.2 g	@ 71.9 ms
LATERAL (R)	48.3 g	@ 41.2 ms	13.6 g	@ 71.9 ms

Rib, spine, and pelvis data are processed with the Finite Impulse Response filter routine for injury criteria evaluation.

Data Sheet 5 (Continued)

SID Instrumentation Data

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302

TEST NUMBER: 011206 PASSENGER DUMMY SERIAL NUMBER: 270

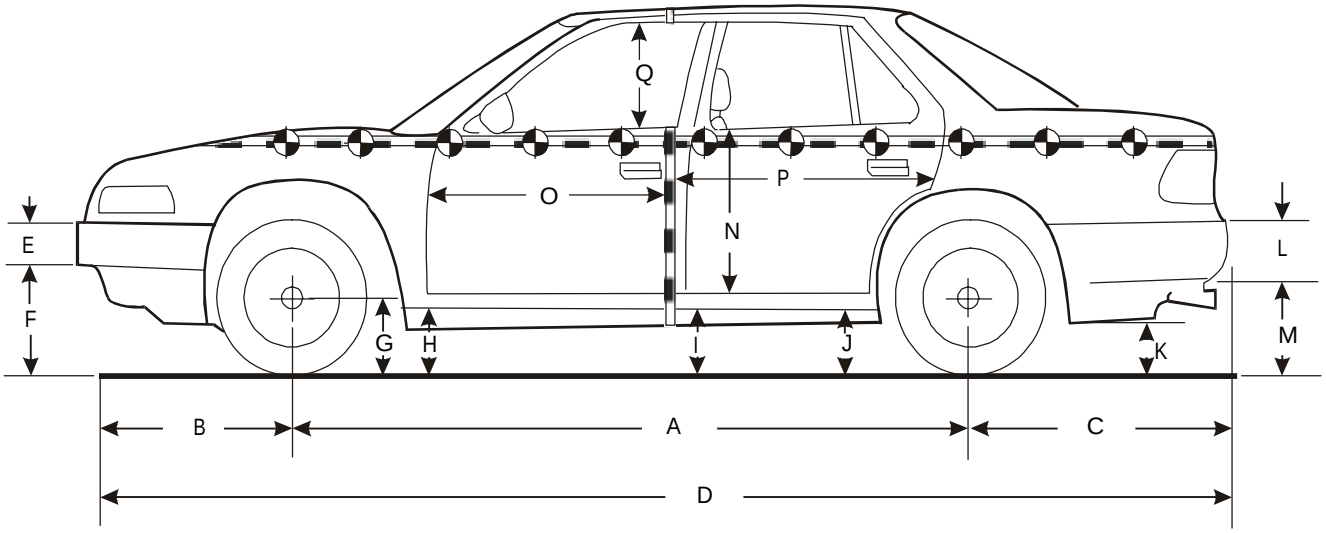
	POSITIVE DIRECTION		NEGATIVE DIRECTION	
HEAD ACCELERATION				
LONGITUDINAL	12.6 g	@ 65.5 ms	13.0 g	@ 84.4 ms
LATERAL	78.7 g	@ 63.1 ms	10.9 g	@ 52.1 ms
VERTICAL	19.4 g	@ 62.6 ms	15.5 g	@ 73.6 ms
RESULTANT	81.0 g	@ 63.1 ms		
HIC	255 from 60.7 to 69.0 ms			
LEFT UPPER RIB ACCELERATION				
LATERAL (P)	28.5 g	@ 61.9 ms	3.0 g	@ 222.5 ms
LATERAL (R)	27.0 g	@ 62.5 ms	4.3 g	@ 222.5 ms
LEFT LOWER RIB ACCELERATION				
LATERAL (P)	35.5 g	@ 55.6 ms	6.9 g	@ 222.5 ms
LATERAL (R)	32.2 g	@ 55.0 ms	7.7 g	@ 103.1 ms
TTI d (P)	40.0			
TTI d (R)	38.9			
LOWER SPINE ACCELERATION				
LATERAL (P)	44.5 g	@ 50.6 ms	8.0 g	@ 75.6 ms
LATERAL (R)	45.6 g	@ 50.6 ms	8.0 g	@ 88.1 ms
PELVIS ACCELERATION				
LATERAL (P)	54.0 g	@ 41.9 ms	14.1 g	@ 86.9 ms
LATERAL (R)	53.6 g	@ 41.9 ms	14.1 g	@ 86.3 ms

Rib, spine, and pelvis data are processed with the Finite Impulse Response filter routine for injury criteria evaluation.

Data Sheet 6

Vehicle Pre-Test And Post-Test Measurements

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302



Left Side View

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

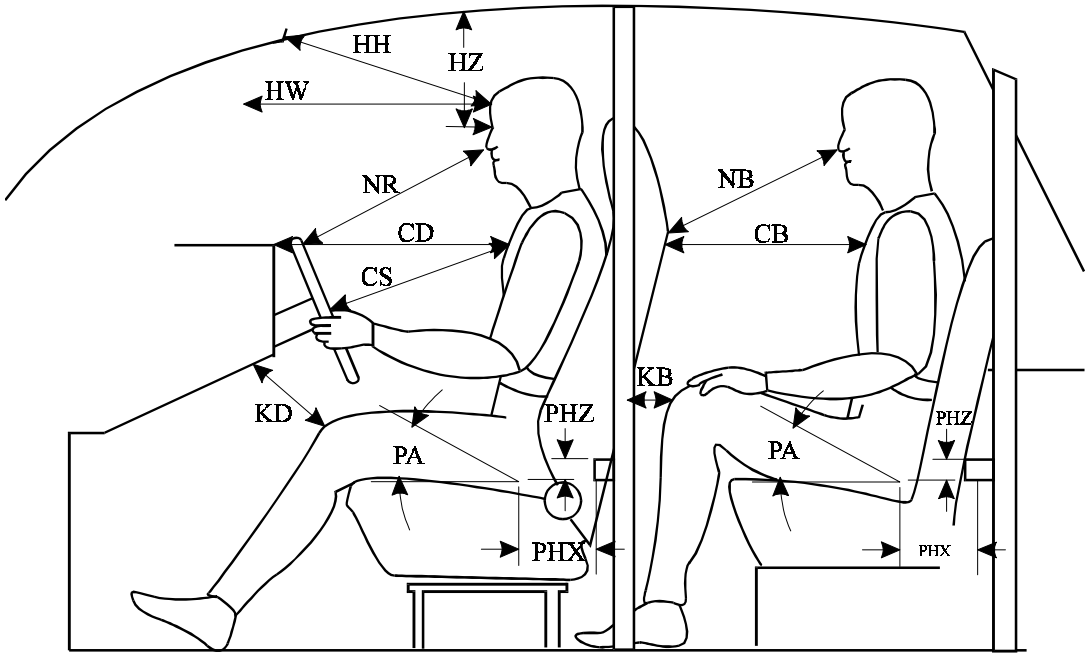
	Pre-Test (as delivered)	Pre-Test (as tested)	Post-Test (as tested)	Change
A	2700	2700	2667	33
B	970	970	970	0
C	1100	1100	1082	18
D	4770	4770	4770	0
E	275	275	275	0
F	495	465	495	0
G	345	345	345	0
H	400	370	385	-15
I	386	360	400	-40
J1	346	300	315	-15
J2	420	375	400	-25
K	465	425	410	15
L	242	242	242	0
M	524	475	454	21
N	800	800	712	88
O	776	776	756	20
P	1345	1345	1278	67
Q	475	475	460	15
R	4525	4525	4505	20
S	4520	4520	4459	61
T	1461	1461	1315	146

D = Length at centerline E&L = Bumper Thickness R = Right Side Length S = Left Side Length
T = Width at B-pillar J1 = To Pinch Weld J2 = To Sill

Data Sheet 7

SID Longitudinal Clearance Dimensions

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302



Left Side View

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

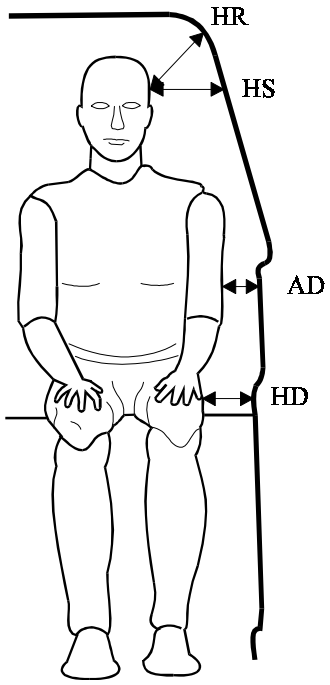
Measurement	Driver SID # 269	Left Rear Passenger SID # 270
HH	406	N/A
HW	632	N/A
HZ	187	192
NR/NB	450	538
CD/CB	551	496
CS	313	N/A
KDL(KDA°)/KBL(KBA°)	85/65.3°	201/66.6°
KDR(KDA°)/KBR(KBA°)	97/72.4°	193/64.2°
PA°	23°	23.1°
PHX	224	290
PHZ	95	205

Note: 2-door vehicle shown. Rear dummy PHX and PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

Data Sheet 8

SID Lateral Clearance Dimensions

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302



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

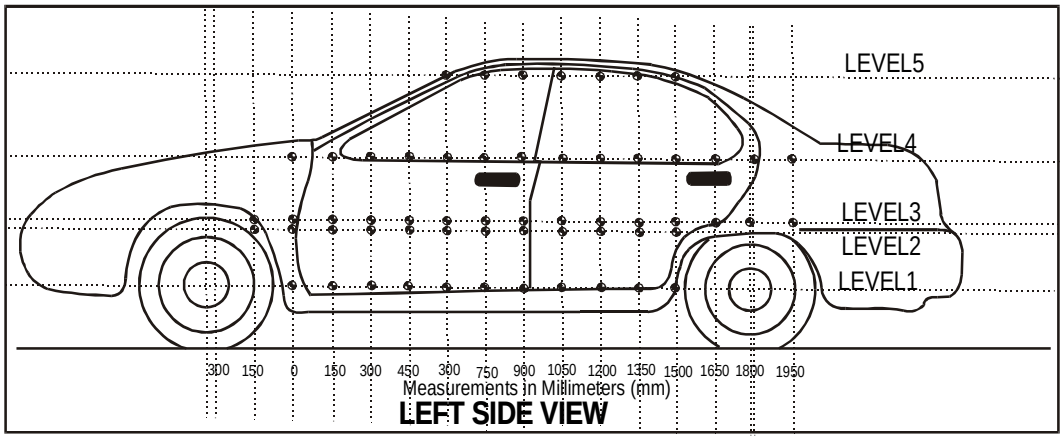
Measurement	Driver SID # 269	Left Rear Passenger SID # 270
HR	240	182
HS	279	265
AD*	Lower: 82 Upper: 117	Lower: 116 Upper: 116
HD	163	200

* Lower measurement is taken laterally at center of the lower rib accelerometer height from the SID arm segment to the closest part of the vehicle side.
Upper measurement is taken laterally at center of the upper rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

Data Sheet 9

Vehicle Side Measurements

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302



Level 5 - Window Top
Level 4 - Window Sill
Level 3 - Mid-Door
Level 2 - Occupant H-Point
Level 1 - Axle Centerline Height or Sill Top Height

Measurements Are Taken When The Vehicle Is In The "As Tested" Configuration.

Measurements along the vertical 750 mm line shown above:

Level 5 @ Window Top	=	1707	mm
Level 4 @ Window Sill	=	1060	mm
Level 3 @ Mid Door	=	748	mm
Level 2 @ Occupant H-Point	=	735	mm
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	380	mm

Data Sheet 10

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302

Location	Height		(mm) From Impact Point													
			-1200	-1050	-900	-750	-600	-450	-300	-150	0	150	300	450	600	750
Level 1 Side Sill	380	Pre	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	920	915	915	914	914
		Post	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	991	1009	1029	1041	1060
		Crush	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	71	94	114	127	146
Level 2 H-Point	735	Pre	N/A	N/A	889	N/A	N/A	N/A	N/A	N/A	837	851	850	849	846	846
		Post	N/A	N/A	901	N/A	N/A	N/A	N/A	N/A	880	1070	1096	1110	1128	1136
		Crush	N/A	N/A	12	N/A	N/A	N/A	N/A	N/A	43	219	246	261	282	290
Level 3 Mid-Door	748	Pre	N/A	N/A	890	841	N/A	N/A	N/A	N/A	840	850	846	848	845	845
		Post	N/A	N/A	901	855	N/A	N/A	N/A	N/A	880	1059	1097	1112	1125	1138
		Crush	N/A	N/A	11	14	N/A	N/A	N/A	N/A	40	209	251	264	280	293
Level 4 Window Sill	1060	Pre	N/A	N/A	1010	982	950	944	936	928	918	906	903	896	892	892
		Post	N/A	N/A	1019	983	975	960	950	942	944	938	953	967	978	993
		Crush	N/A	N/A	9	1	25	16	14	14	26	32	50	71	86	101
Level 5 Window Top	1707	Pre	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1164	1145
		Post	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1173	1161
		Crush	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9	16

Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302

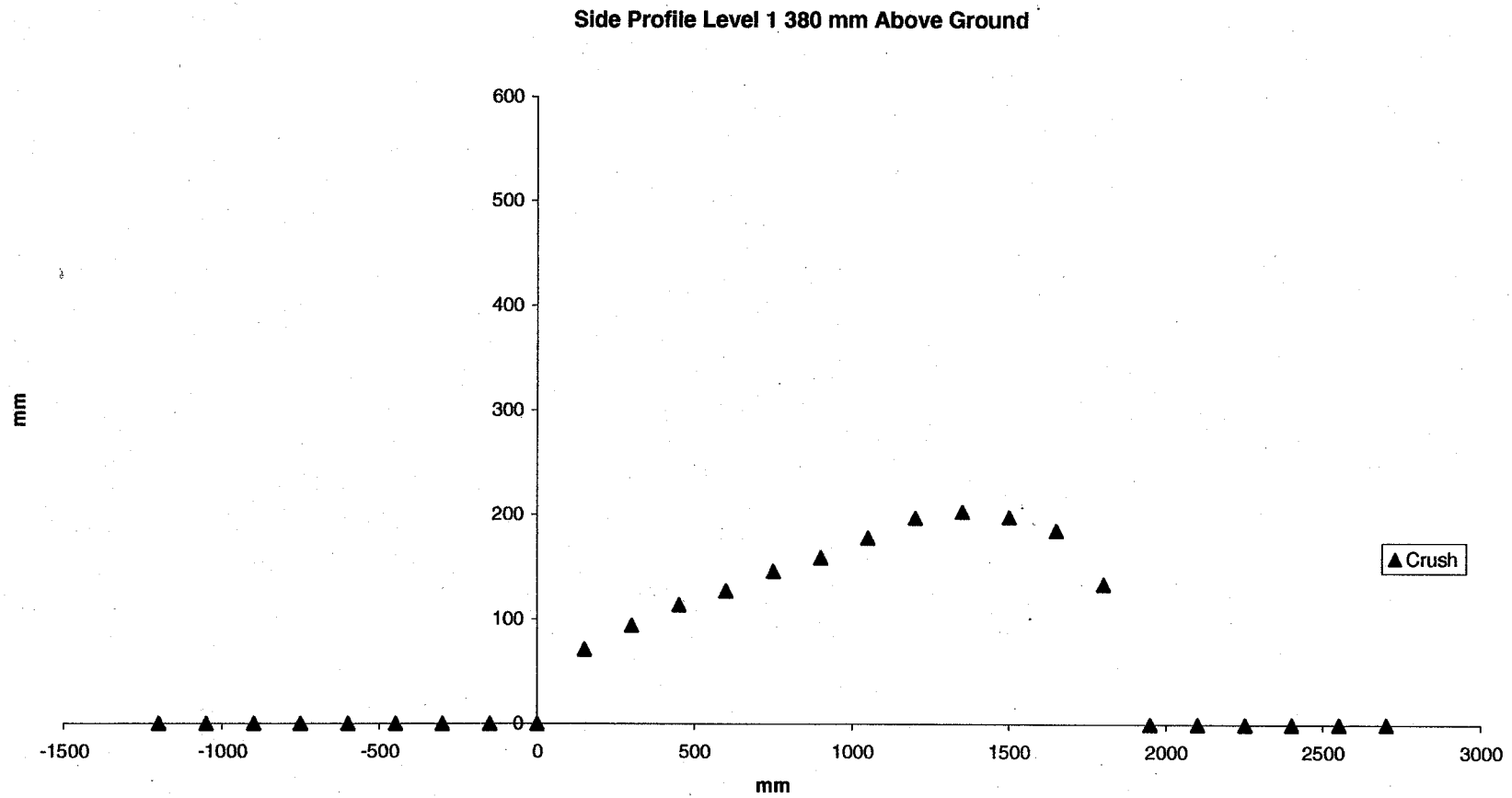
Location	Height		(mm) From Impact Point												
			900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700
Level 1 Side Sill	380	Pre	915	913	915	915	912	915	916	N/A	N/A	N/A	N/A	N/A	N/A
		Post	1074	1091	1112	1118	1110	1100	1050	N/A	N/A	N/A	N/A	N/A	N/A
		Crush	159	178	197	203	198	185	134	N/A	N/A	N/A	N/A	N/A	N/A
Level 2 H-Point	735	Pre	847	847	850	851	846	849	852	833	N/A	N/A	N/A	N/A	852
		Post	1147	1145	1163	1151	1140	1119	1094	948	N/A	N/A	N/A	N/A	893
		Crush	300	298	313	300	294	270	242	115	N/A	N/A	N/A	N/A	41
Level 3 Mid-Door	748	Pre	845	846	850	850	845	848	851	832	N/A	N/A	N/A	N/A	857
		Post	1148	1145	1165	1150	1136	1113	1091	948	N/A	N/A	N/A	N/A	899
		Crush	303	299	315	300	291	265	240	116	N/A	N/A	N/A	N/A	42
Level 4 Window Sill	1060	Pre	890	888	886	885	870	872	872	872	875	877	879	882	891
		Post	1007	1025	1056	1019	991	968	946	917	918	936	929	925	925
		Crush	117	137	170	134	121	96	74	45	43	59	50	43	34
Level 5 Window Top	1707	Pre	1142	1141	1140	1145	1120	1122	1122	1130	1135	1142	1150	1158	1177
		Post	1161	1167	1176	1174	1169	1163	1157	1159	1162	1164	1152	1158	1169
		Crush	19	26	36	29	49	41	35	29	27	22	2	0	-8

Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2002 Acura MDX Wagon

NHTSA No.: M25302

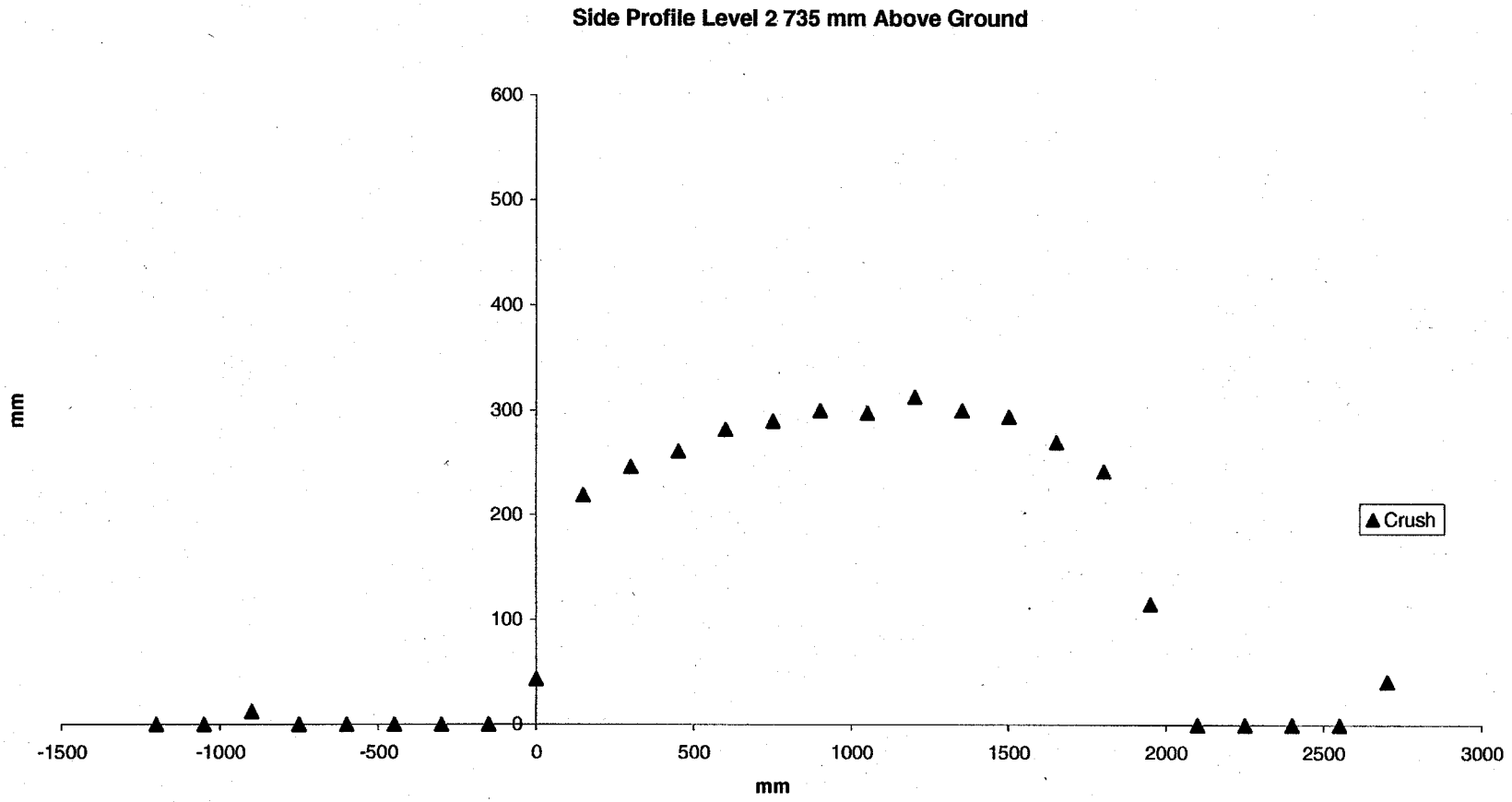


Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2002 Acura MDX Wagon

NHTSA No.: M25302

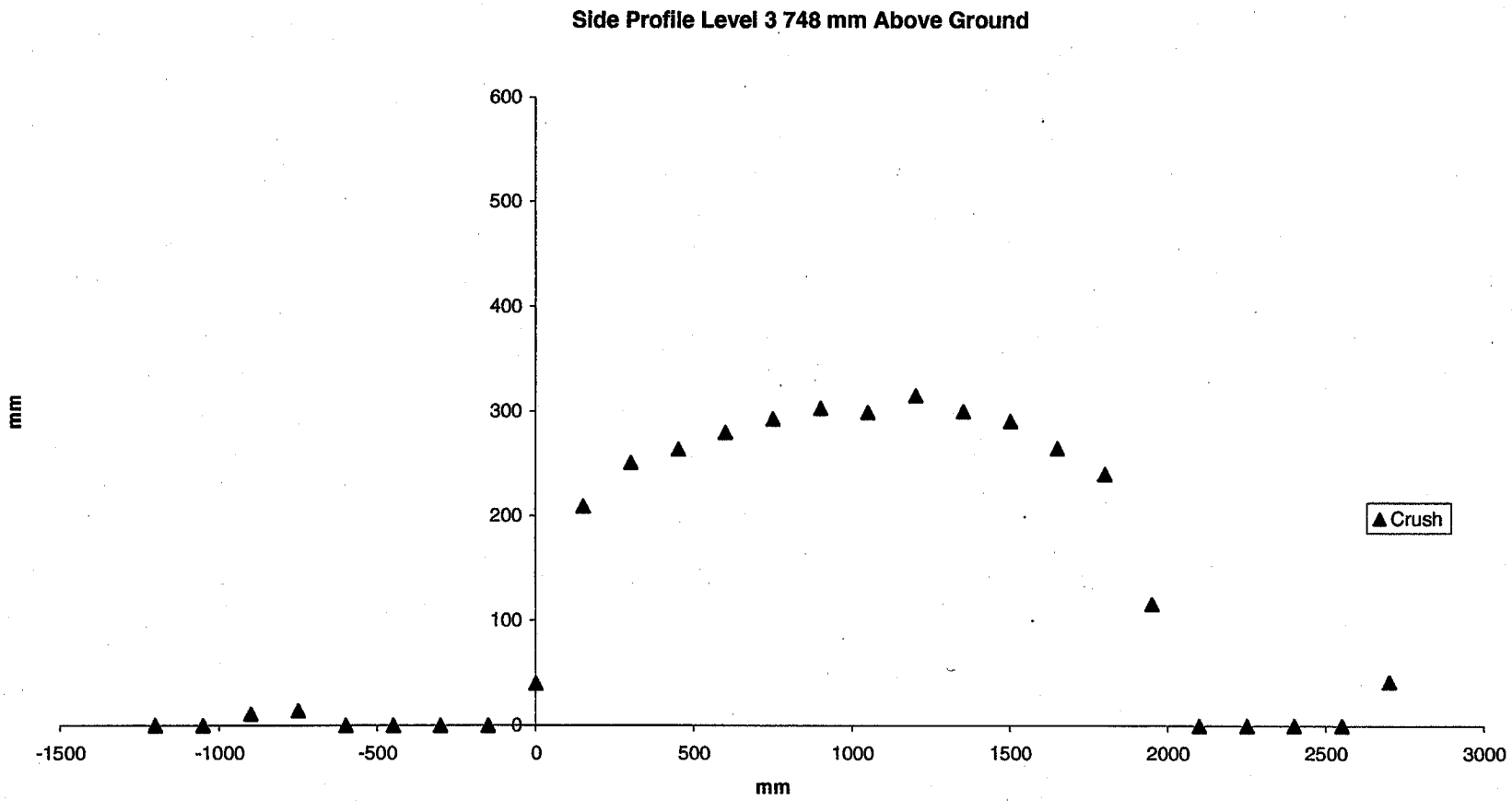


Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2002 Acura MDX Wagon

NHTSA No.: M25302



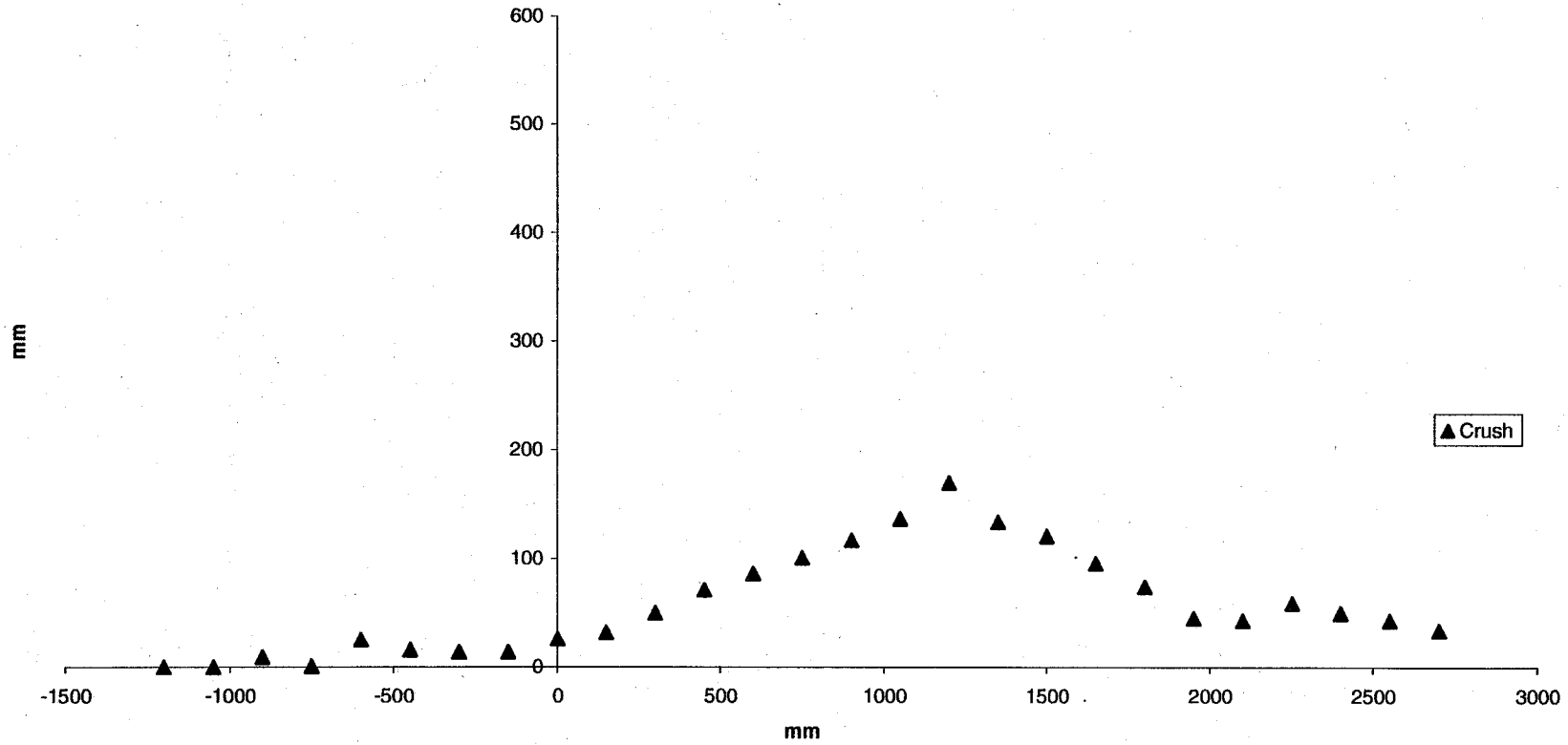
Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2002 Acura MDX Wagon

NHTSA No.: M25302

Side Profile Level 4 1060 mm Above Ground



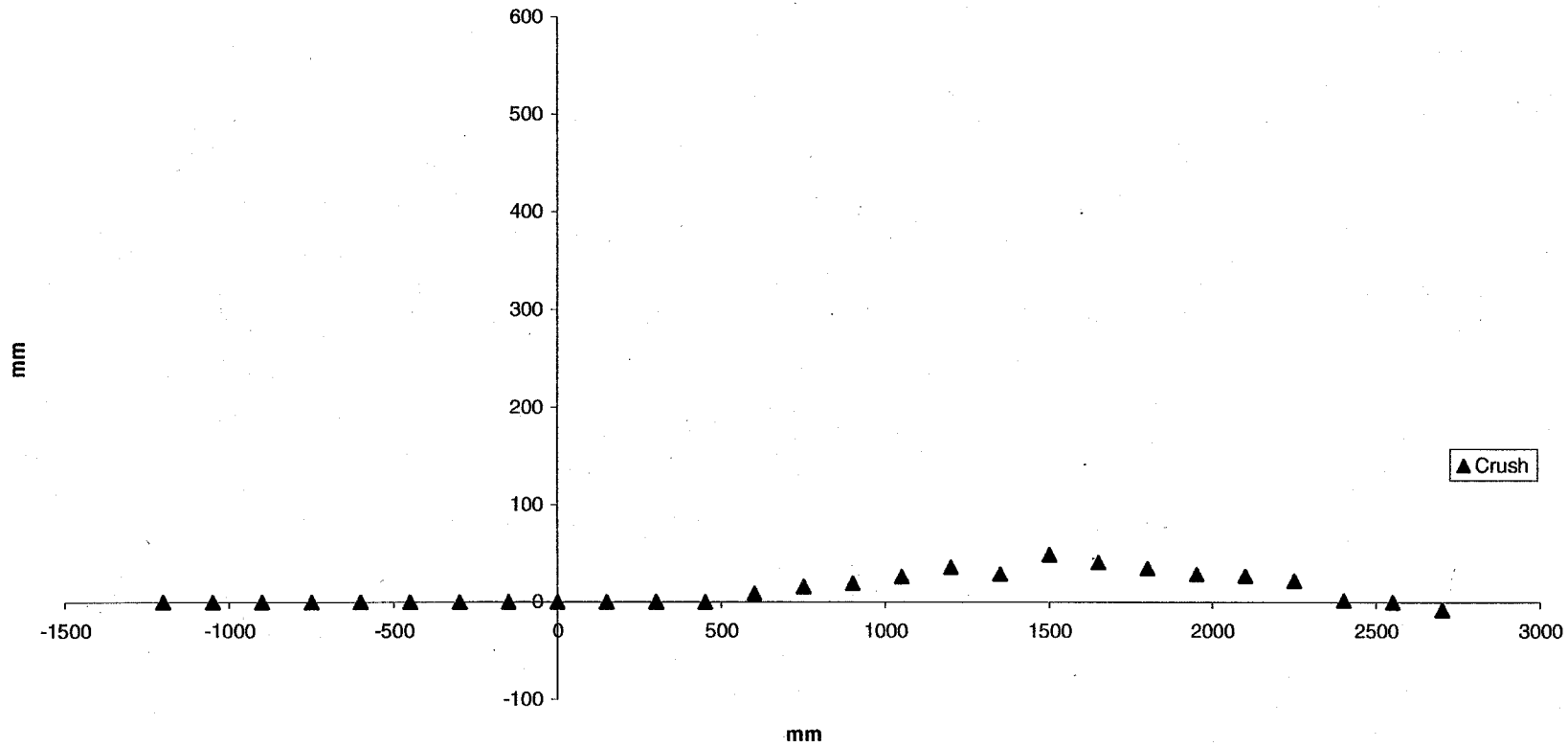
Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2002 Acura MDX Wagon

NHTSA No.: M25302

Side Profile Level 5 1707 mm Above Ground

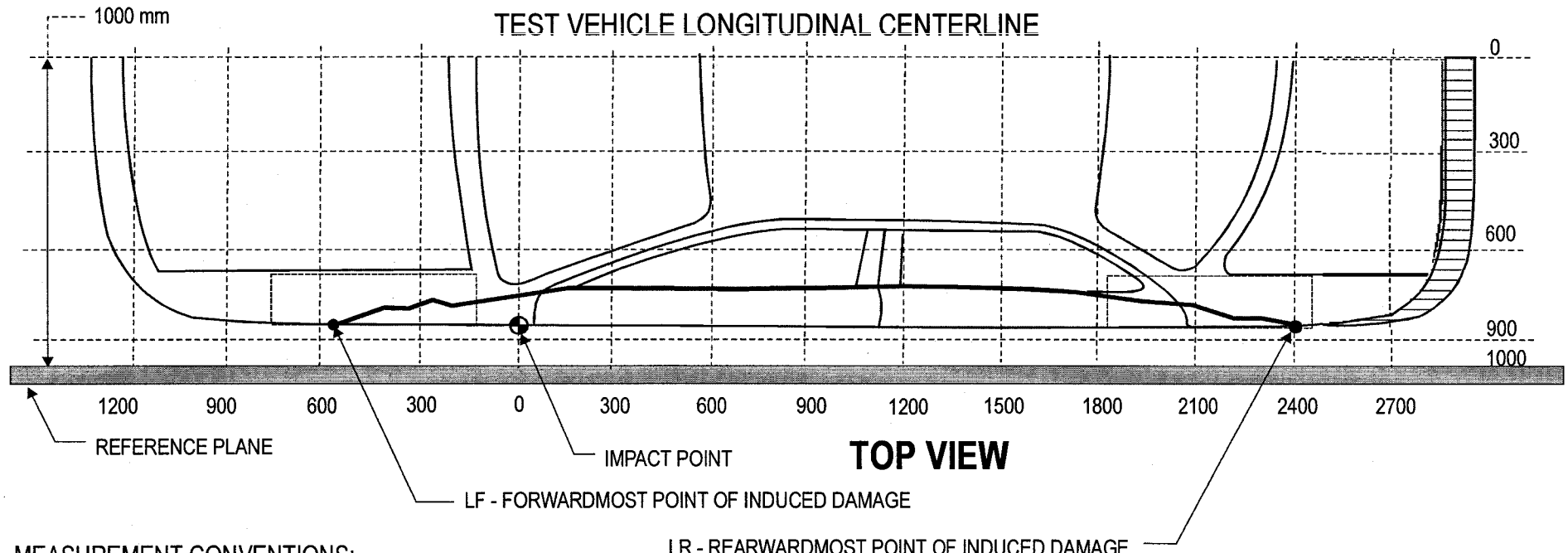


Data Sheet 11

Vehicle Damage Profile Distances

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302

NOTE: All measurements are in millimeters (mm) and should be accurate to plus or minus 3mm.



MEASUREMENT CONVENTIONS:
Forward of the impact point (towards front of vehicle) is considered negative (-)
Rearward of the impact point (towards rear end of vehicle) is considered positive (+)

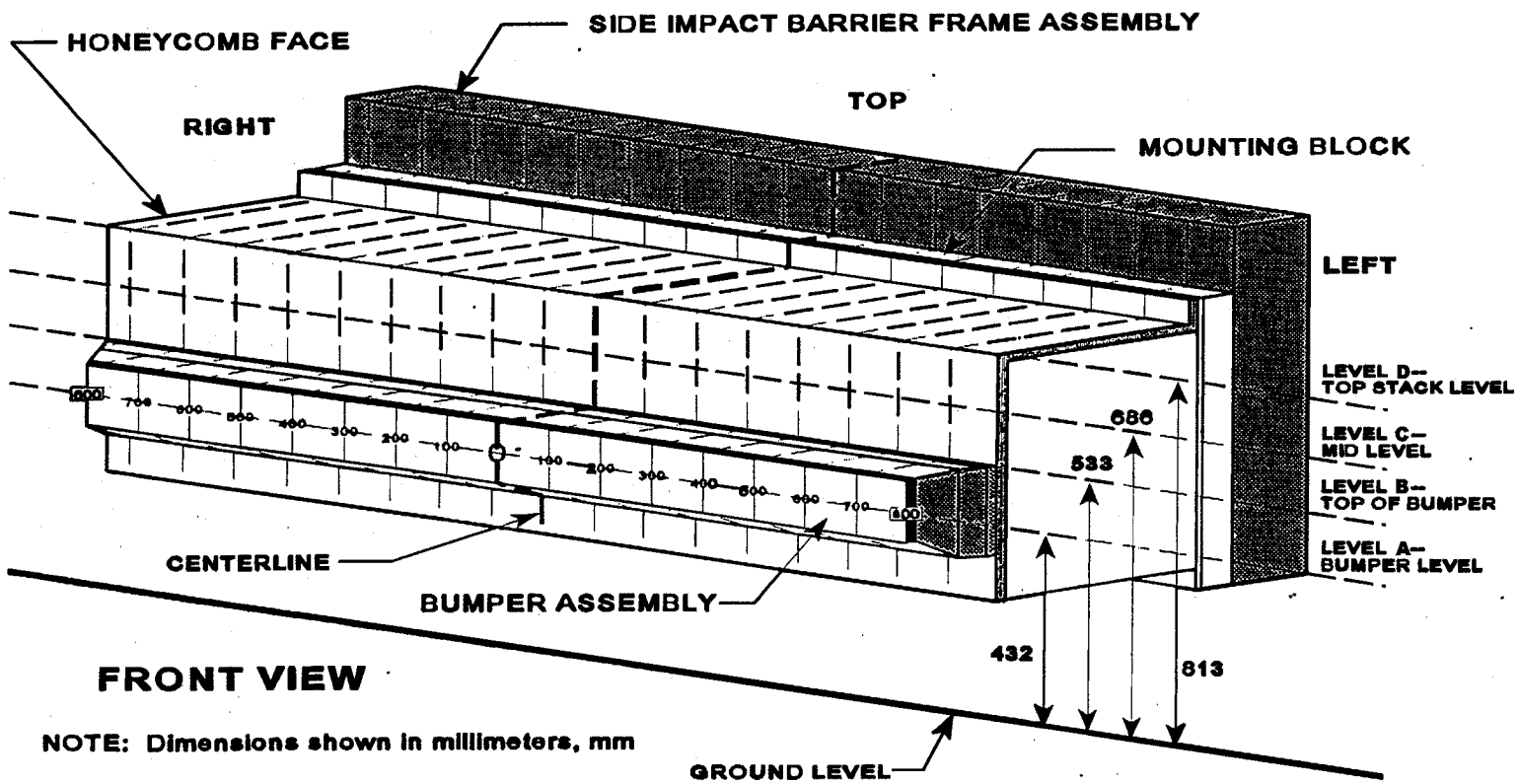
DPD Measurements	Post-Test (mm)	Pre-Test (mm)	Static Crush (mm)
6 -150 mm (Level 4)	942	928	14
5 450 mm (Level 3)	1112	848	264
4 1050 mm (Level 3)	1145	846	299
3 1650 mm (Level 2)	1119	849	270
2 2250 mm (Level 4)	936	877	59
1 2700 mm (Level 3)	899	857	42

Data Sheet 12

Exterior Static Crush For Impactor Face

(Grid as looking at MDB from front)

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302



Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2002 Acura MDX Wagon

NHTSA No.: M25302

		Distance Right of Center (mm)									Distance Left of Center (mm)							
Location	Height At CL	800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
Top Stack Level - Level D	813	-102.8	-78.7	-57.7	-38.5	-22.7	-22.1	-31.8	-33.6	-34.7	-34.4	-40.0	-46.0	-54.4	-62.3	-79.2	-97.0	-140.1
Mid Level Level C	686	-76.4	-51.3	-40.8	-29.7	-19.1	-17.6	-25.7	-29.0	-22.5	-25.7	-28.9	-36.6	-44.9	-52.4	-68.1	-80.6	-90.6
Top Bumper Level - Level B	552	-120.2	-115.2	-106.3	-92.5	-85.2	-82.2	-82.1	-84.2	-85.6	-90.4	-93.2	-97.6	-108.6	-114.8	-115.1	-123.5	-128.7
Mid Bumper Level - Level A	432	-149.3	-150.2	-144.8	-144.4	-147.0	-151.5	-158.2	-163.3	-165.5	-175.5	-180.4	-186.3	-192.1	-198.1	-206.7	-217.0	-232.4

All measurements are in millimeters and have a tolerance of ± 3mm.

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2002 Acura MDX Wagon

Deformable Barrier Face Profile

NHTSA No.: M25302

Pre-Test

Index	Xmm	Ymm	Zmm
1	-405.7	796.3	-65.6
2	-406.0	694.1	-66.4
3	-405.8	594.2	-67.6
4	-406.1	494.5	-68.4
5	-406.0	394.1	-69.0
6	-405.7	294.5	-69.0
7	-405.9	194.0	-70.9
8	-406.1	93.9	-72.3
9	-405.9	-7.4	-73.6
10	-406.2	-107.2	-74.5
11	-406.4	-207.5	-75.3
12	-406.5	-308.6	-76.5
13	-406.7	-408.0	-78.0
14	-407.0	-508.2	-79.0
15	-406.4	-608.2	-80.2
16	-405.6	-707.3	-81.2
17	-406.4	-810.3	-82.0
18	-405.2	799.3	-193.4
19	-404.9	695.7	-193.8
20	-405.5	595.4	-194.4
21	-405.5	495.8	-194.9
22	-405.7	395.6	-196.1

Post-Test

Index	Xmm	Ymm	Zmm
1	-303.0	749.6	-114.0
2	-327.3	649.5	-116.0
3	-348.1	552.4	-117.7
4	-367.6	455.9	-120.2
5	-383.3	356.7	-120.6
6	-383.6	258.8	-121.2
7	-374.1	159.1	-129.7
8	-372.6	61.2	-127.4
9	-371.2	-38.4	-126.9
10	-371.8	-138.0	-120.8
11	-366.4	-238.1	-117.0
12	-360.5	-339.3	-115.0
13	-352.4	-437.8	-110.5
14	-344.7	-536.3	-103.5
15	-327.2	-635.3	-102.5
16	-308.6	-733.3	-99.9
17	-266.4	-822.2	-110.3
18	-328.8	757.7	-236.2
19	-353.6	658.5	-237.5
20	-364.7	558.1	-240.3
21	-375.8	459.2	-243.1
22	-386.7	358.6	-245.6

Difference

Index	Xmm	Ymm	Zmm
1	-102.8	46.7	48.4
2	-78.7	44.6	49.6
3	-57.7	41.8	50.1
4	-38.5	38.6	51.8
5	-22.7	37.4	51.7
6	-22.1	35.7	52.2
7	-31.8	34.9	58.8
8	-33.6	32.8	55.1
9	-34.7	31.1	53.3
10	-34.4	30.9	46.3
11	-40.0	30.7	41.8
12	-46.0	30.8	38.5
13	-54.4	29.8	32.5
14	-62.3	28.2	24.5
15	-79.2	27.1	22.3
16	-97.0	26.0	18.7
17	-140.1	11.9	28.3
18	-76.4	41.6	42.8
19	-51.3	37.3	43.7
20	-40.8	37.3	45.9
21	-29.7	36.6	48.2
22	-19.1	37.0	49.5

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2002 Acura MDX Wagon

Deformable Barrier Face Profile Cont'd.

NHTSA No.: M25302

Pre-Test			
Index	Xmm	Ymm	Zmm
23	-406.2	296.2	-197.0
24	-405.9	195.8	-198.7
25	-405.7	95.1	-199.2
26	-406.1	-4.3	-201.0
27	-406.0	-106.2	-201.1
28	-405.5	-205.0	-201.9
29	-406.1	-304.9	-202.8
30	-406.1	-405.3	-204.1
31	-406.6	-505.9	-205.4
32	-406.5	-605.5	-207.0
33	-406.6	-705.2	-207.7
34	-406.7	-808.4	-209.4
35	-405.3	799.4	-327.6
36	-406.1	696.8	-329.7
37	-406.1	597.8	-330.5
38	-406.0	498.2	-331.3
39	-406.2	396.6	-331.8
40	-406.5	297.4	-332.7
41	-406.3	197.1	-333.1
42	-406.3	97.3	-333.8
43	-406.5	-2.6	-334.8
44	-406.3	-104.3	-335.4

Post-Test			
Index	Xmm	Ymm	Zmm
23	-388.7	258.3	-246.0
24	-380.2	158.6	-245.3
25	-376.8	56.8	-244.1
26	-383.6	-43.2	-237.6
27	-380.3	-144.2	-240.7
28	-376.6	-243.5	-236.5
29	-369.5	-343.0	-232.9
30	-361.2	-443.2	-229.8
31	-354.2	-543.2	-225.7
32	-338.4	-641.5	-222.5
33	-326.0	-740.4	-218.5
34	-316.1	-843.2	-218.4
35	-285.1	754.1	-343.9
36	-290.9	655.1	-343.3
37	-299.8	556.8	-345.9
38	-313.5	456.7	-347.7
39	-321.0	356.9	-349.9
40	-324.4	258.4	-351.7
41	-324.3	155.2	-348.7
42	-322.2	55.8	-345.4
43	-320.9	-43.4	-337.4
44	-316.0	-145.1	-332.8

Difference			
Index	Xmm	Ymm	Zmm
23	-17.6	38.0	49.0
24	-25.7	37.2	46.6
25	-29.0	38.4	45.0
26	-22.5	38.9	36.6
27	-25.7	38.0	39.6
28	-28.9	38.5	34.6
29	-36.6	38.1	30.2
30	-44.9	37.9	25.7
31	-52.4	37.4	20.3
32	-68.1	36.0	15.5
33	-80.6	35.2	10.9
34	-90.6	34.8	9.1
35	-120.2	45.4	16.3
36	-115.2	41.7	13.6
37	-106.3	41.0	15.5
38	-92.5	41.5	16.5
39	-85.2	39.7	18.1
40	-82.2	39.0	19.0
41	-82.1	41.9	15.6
42	-84.2	41.5	11.6
43	-85.6	40.8	2.6
44	-90.4	40.8	-2.6

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2002 Acura MDX Wagon

NHTSA No.: M25302

Deformable Barrier Face Profile Cont'd.

Pre-Test			
Index	Xmm	Ymm	Zmm
45	-406.3	-203.6	-335.7
46	-406.5	-303.7	-337.1
47	-406.4	-403.0	-336.9
48	-406.7	-503.7	-338.6
49	-407.1	-603.5	-341.0
50	-406.7	-704.4	-341.0
51	-406.7	-806.2	-341.6
52	-496.1	796.4	-447.6
53	-509.4	696.8	-449.9
54	-509.4	596.8	-450.6
55	-509.5	497.1	-451.5
56	-509.8	396.1	-452.2
57	-509.5	297.2	-452.8
58	-509.7	196.8	-453.7
59	-510.1	96.5	-455.0
60	-510.0	-4.3	-454.7
61	-510.3	-104.2	-455.8
62	-510.5	-204.9	-456.6
63	-510.0	-302.4	-457.4
64	-510.1	-402.8	-458.3
65	-510.1	-503.0	-458.5
66	-510.0	-602.9	-459.5
67	-509.8	-702.35	-462.35
68	-498.75	-803.5	-462.35

Post-Test			
Index	Xmm	Ymm	Zmm
45	-313.2	-244.6	-329.1
46	-308.9	-343.8	-325.1
47	-297.8	-441.7	-321.2
48	-292.0	-542.4	-316.0
49	-292.0	-642.9	-309.5
50	-283.2	-745.8	-304.5
51	-278.0	-833.0	-313.0
52	-346.9	745.4	-494.9
53	-359.2	642.4	-496.6
54	-364.7	543.9	-499.0
55	-365.1	443.8	-499.8
56	-362.9	342.9	-495.9
57	-358.1	244.0	-493.3
58	-351.5	143.9	-488.7
59	-346.8	44.1	-482.7
60	-344.6	-54.0	-471.1
61	-334.8	-154.0	-476.5
62	-330.2	-253.1	-471.5
63	-323.7	-352.7	-467.9
64	-318.0	-452.0	-462.5
65	-312.0	-551.2	-457.4
66	-303.3	-651.9	-453.5
67	-292.85	-752.2	-446.2
68	-266.4	-847.7	-430.05

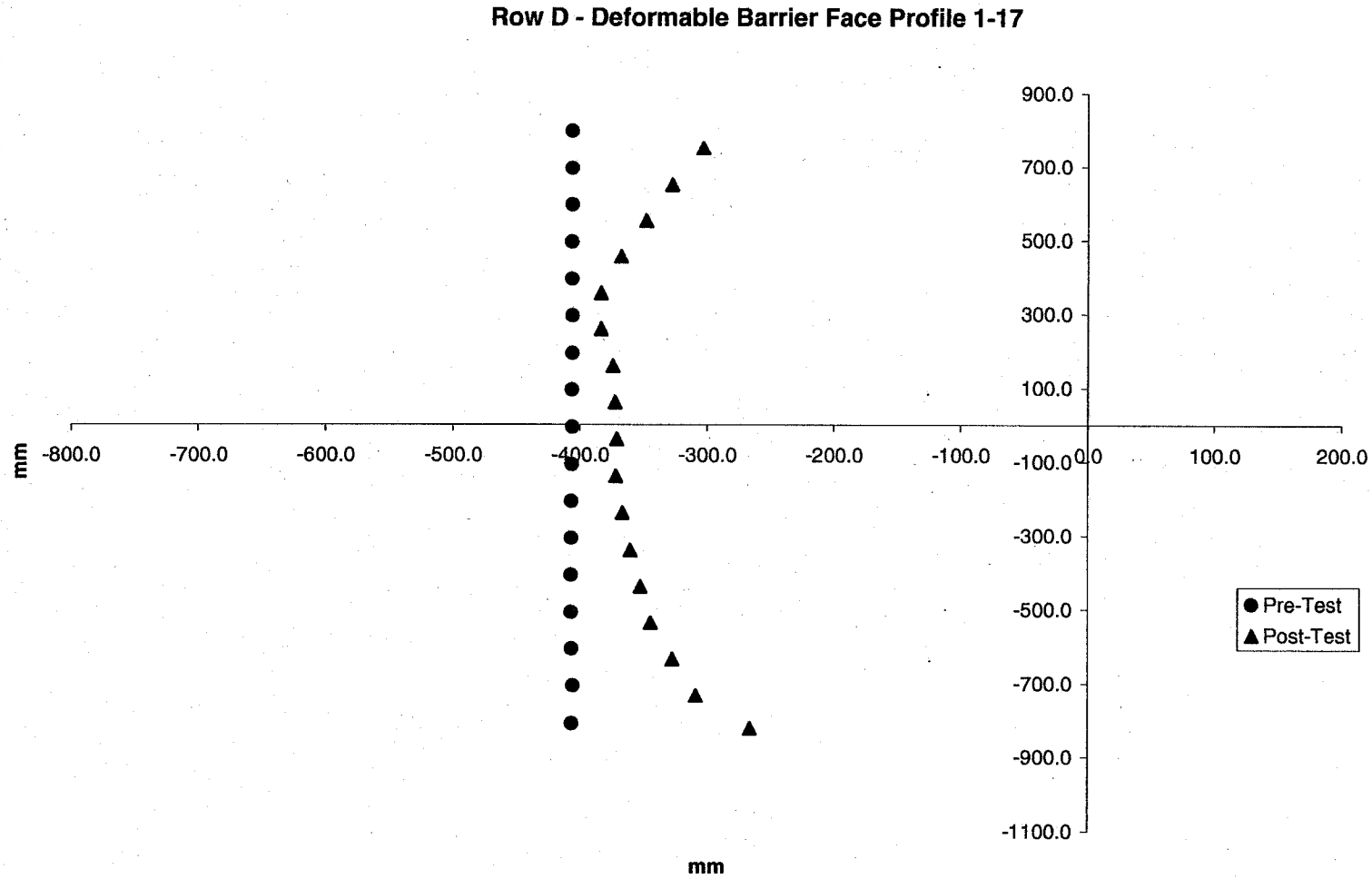
Difference			
Index	Xmm	Ymm	Zmm
45	-93.2	41.0	-6.6
46	-97.6	40.1	-12.1
47	-108.6	38.7	-15.7
48	-114.8	38.7	-22.6
49	-115.1	39.4	-31.6
50	-123.5	41.4	-36.5
51	-128.7	26.9	-28.6
52	-149.3	51.0	47.3
53	-150.2	54.4	46.7
54	-144.8	52.9	48.4
55	-144.4	53.3	48.3
56	-147.0	53.3	43.8
57	-151.5	53.2	40.5
58	-158.2	52.9	35.0
59	-163.3	52.5	27.7
60	-165.5	49.7	16.4
61	-175.5	49.8	20.8
62	-180.4	48.3	14.9
63	-186.3	50.3	10.6
64	-192.1	49.2	4.2
65	-198.1	48.2	-1.1
66	-206.7	49.0	-6.1
67	-217.0	49.9	-16.2
68	-232.4	44.2	-32.3

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2002 Acura MDX Wagon

NHTSA No.: M25302



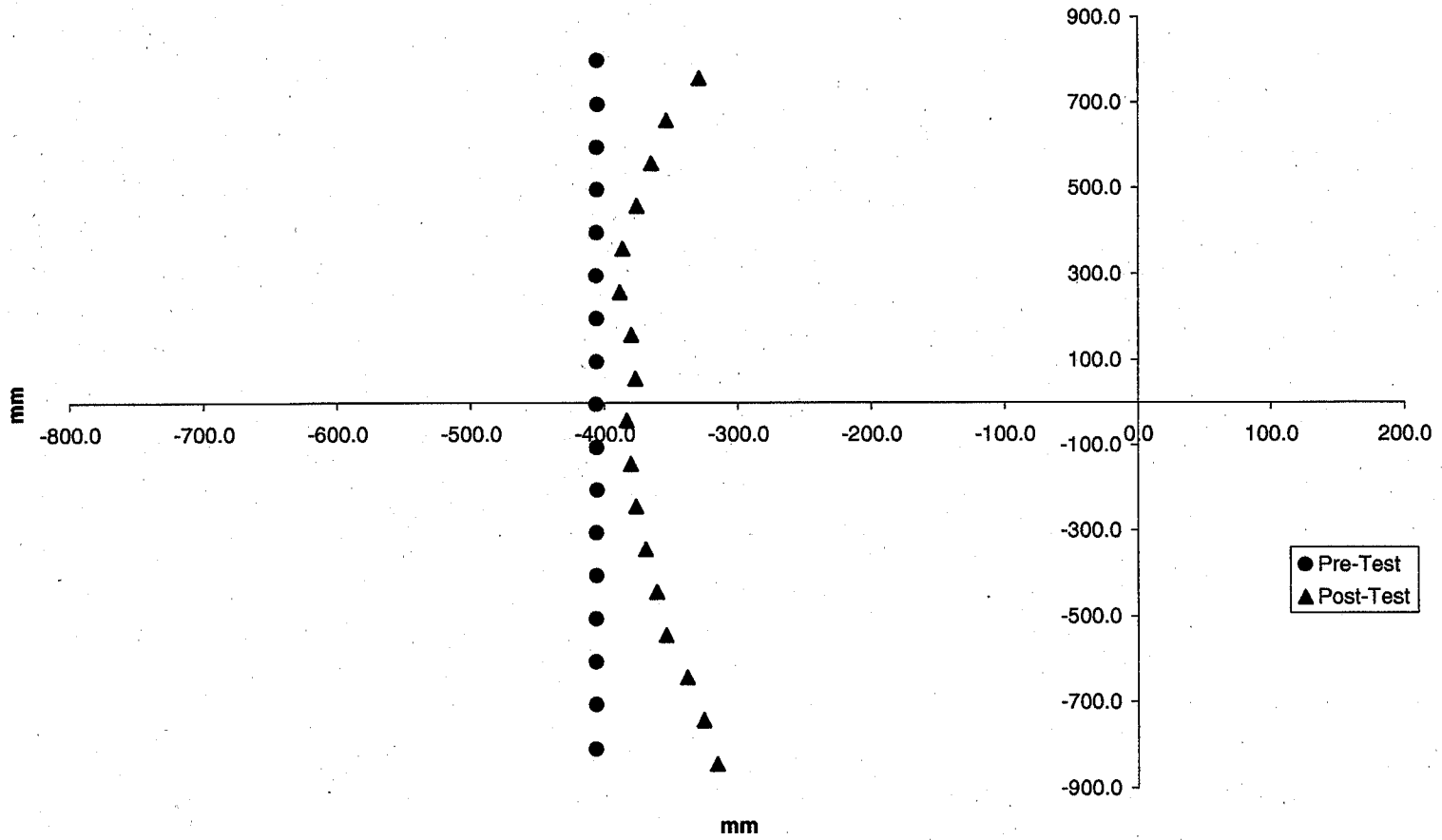
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2002 Acura MDX Wagon

NHTSA No.: M25302

Row C - Deformable Barrier Face Profile 18-34



4:22

011206

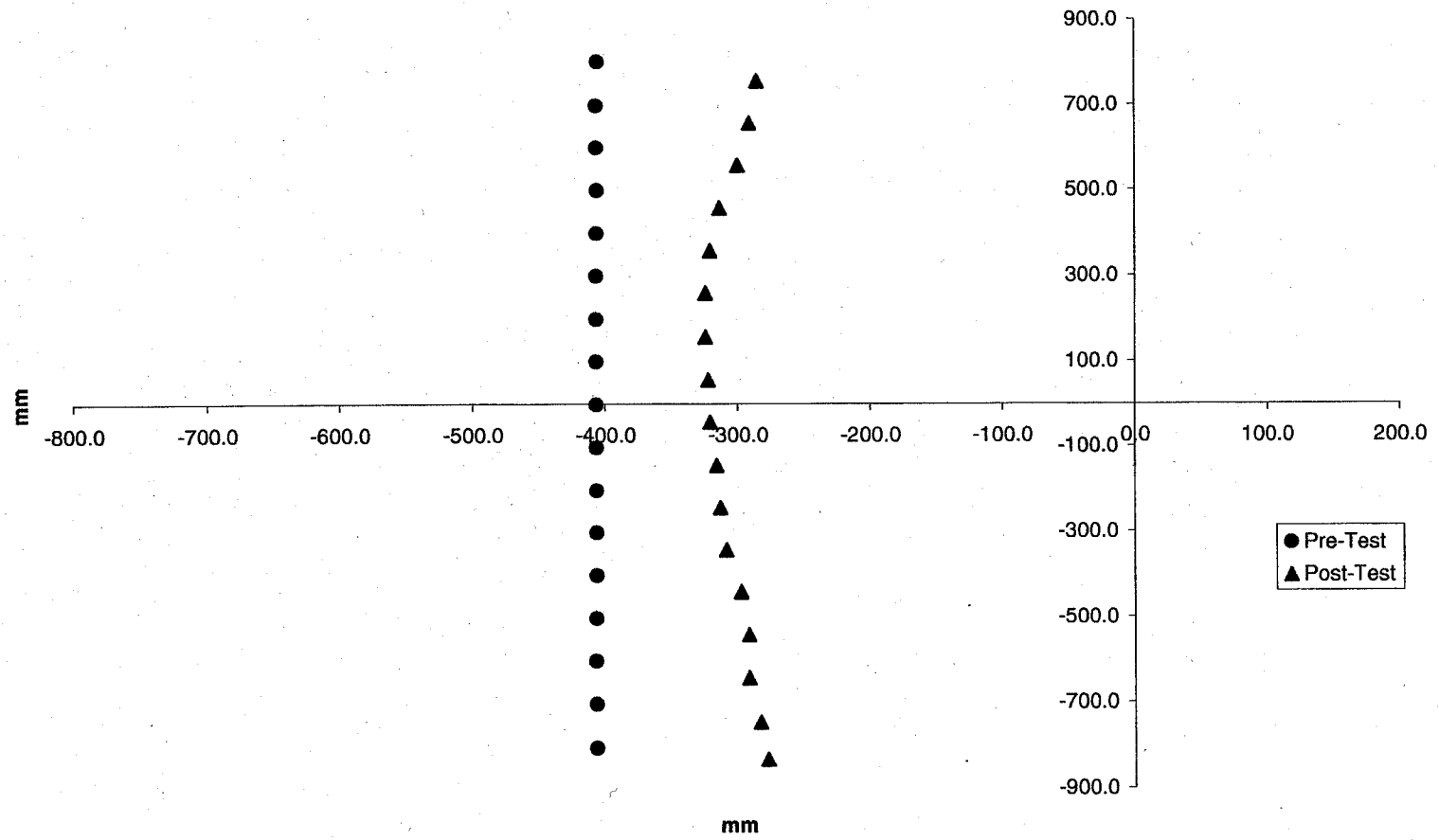
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2002 Acura MDX Wagon

NHTSA No.: M25302

Row B - Deformable Barrier Face Profile 35-51



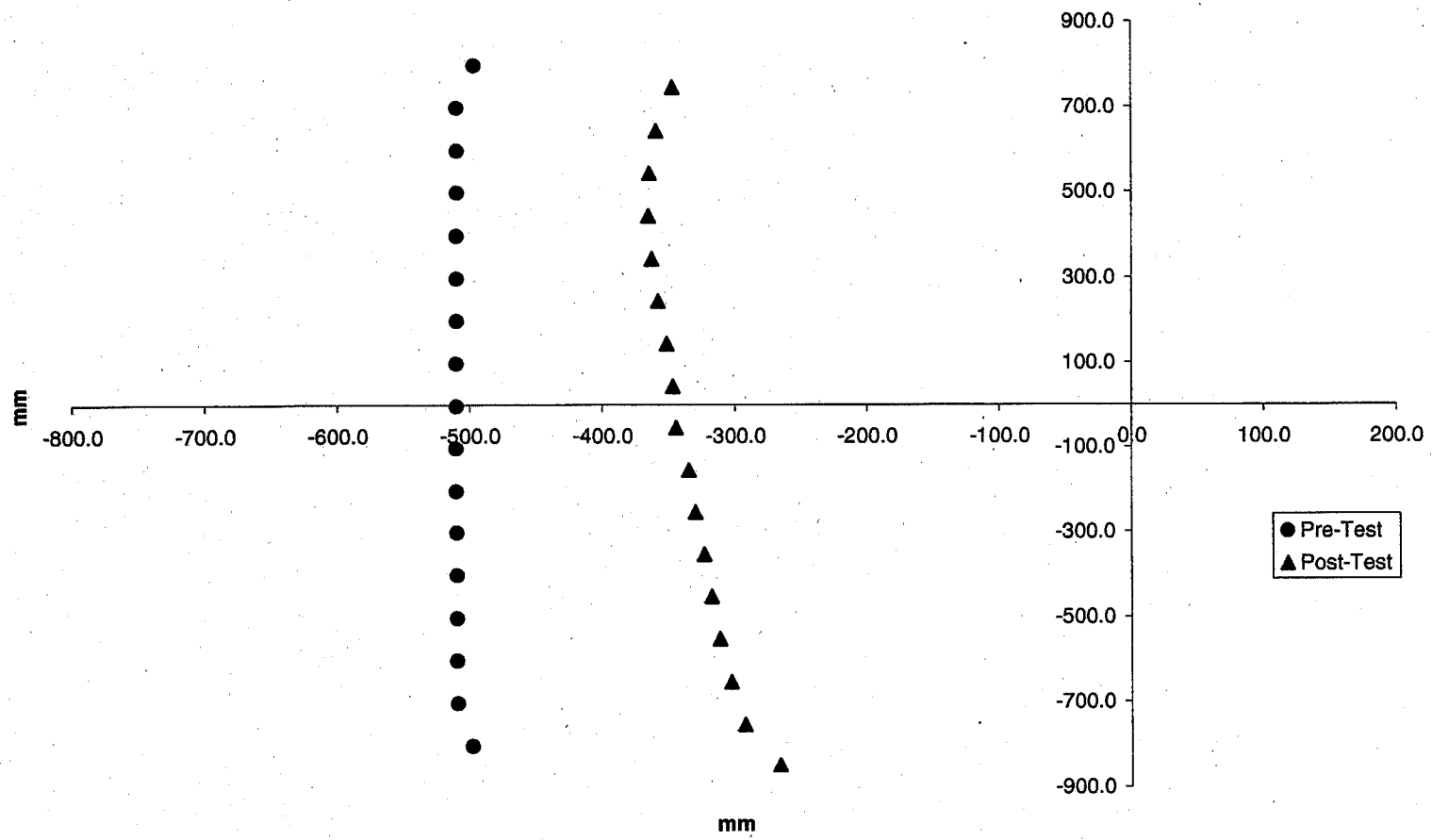
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2002 Acura MDX Wagon

NHTSA No.: M25302

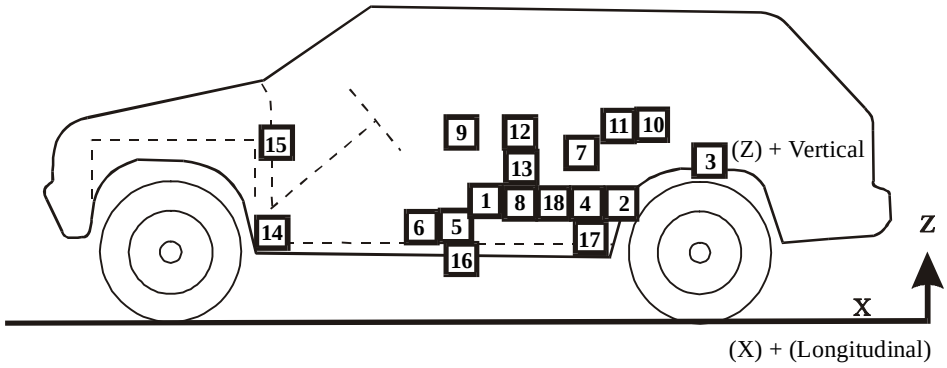
Row A - Deformable Barrier Face Profile 52-68



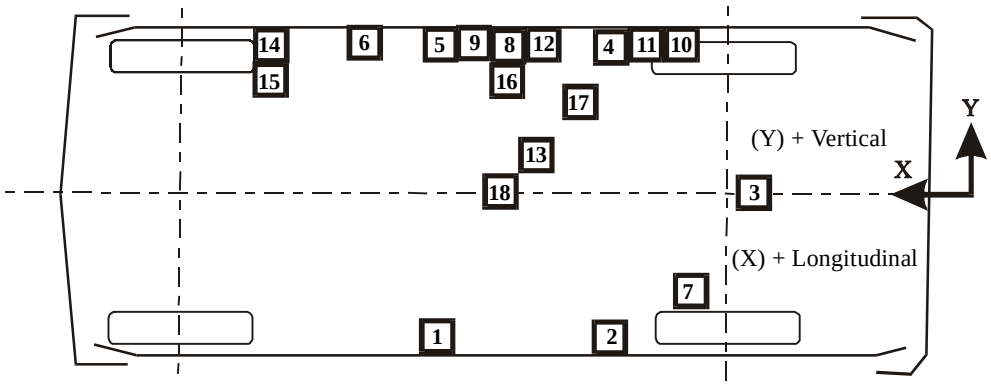
Data Sheet 13

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302



Side View



Bottom View

1-Right Front Side Sill
2-Right Side Sill at Rear Seat
3-Rear Floorpan Above Axle
4-Left Side Sill at Rear Seat
5-Left Front Side Sill
6-Left Front Door on Centerline
7-Right Rear Occupant Compartment
8-Left Front Door Mid Rear
9-Left Front Door Upper Centerline
10-Left Rear Door Mid Rear
11-Left Rear Door Upper Centerline
12-Left Side Lower B-pillar
13-Left Side Middle B-pillar
14-Left Side Lower A-pillar
15-Left Side Middle A-pillar
16-Left Side Front Seat Track at H-point
17-Left Rear Seat Track at H-point
18-Vehicle Center of Gravity

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302

TEST NUMBER: 011206 No. LOCATION		X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
1 RIGHT SIDE SILL	PRE	2845 mm	740 mm	480 mm				
AT FRONT SEAT	POST	2845 mm	740 mm	480 mm				
LONGITUDINAL					3.0 g	@ 29.0 ms	4.2 g	@ 12.6 ms
LATERAL					21.7 g	@ 8.1 ms	2.2 g	@ 122.4 ms
VERTICAL					5.1 g	@ 77.4 ms	7.2 g	@ 9.9 ms
RESULTANT					22.4 g	@ 8.2 ms		
2 RIGHT SIDE SILL	PRE	1935 mm	740 mm	480 mm				
AT REAR SEAT	POST	1935 mm	740 mm	480 mm				
LONGITUDINAL					2.8 g	@ 57.6 ms	4.6 g	@ 8.7 ms
LATERAL					21.4 g	@ 8.2 ms	2.1 g	@ 120.3 ms
VERTICAL					5.1 g	@ 123.4 ms	9.5 g	@ 18.9 ms
RESULTANT					22.3 g	@ 8.3 ms		
3 REAR FLOORPAN	PRE	1069 mm	0 mm	560 mm				
ABOVE AXLE	POST	1069 mm	0 mm	539 mm				
LONGITUDINAL					1.8 g	@ 90.2 ms	5.2 g	@ 8.5 ms
LATERAL					19.6 g	@ 33.3 ms	2.2 g	@ 119.9 ms
VERTICAL					8.4 g	@ 21.9 ms	10.7 g	@ 61.0 ms
RESULTANT					20.5 g	@ 32.5 ms		
4 LEFT SIDE SILL	PRE	1885 mm	-740 mm	480 mm				
AT REAR SEAT	POST	NA	NA	NA				
LATERAL					86.5 g	@ 11.8 ms	14.7 g	@ 19.0 ms
5 LEFT SIDE SILL	PRE	2855 mm	-740 mm	480 mm				
AT FRONT SEAT	POST	NA	NA	NA				
LATERAL					55.1 g	@ 6.1 ms	17.0 g	@ 18.2 ms

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302

TEST NUMBER: 011206 No. LOCATION		X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
6 LEFT FRONT DOOR ON CENTERLINE LATERAL[1]	PRE	2706 mm	-825 mm	669 mm				
	POST	NA	NA	NA	---	---	---	---
7 RIGHT REAR OCCUPANT COMPARTMENT LATERAL	PRE	1505 mm	530 mm	560 mm				
	POST	1505 mm	530 mm	522 mm	18.8 g	@ 8.9 ms	2.0 g	@ 119.7 ms
8 LEFT FRONT DOOR MIDREAR LATERAL[1]	PRE	2455 mm	-825 mm	624 mm				
	POST	NA	NA	NA	137.9 g	@ 7.2 ms	43.4 g	@ 16.3 ms
9 LEFT FRONT DOOR UPPER CENTERLINE LATERAL	PRE	2620 mm	-825 mm	1060 mm				
	POST	NA	NA	NA	73.9 g	@ 11.9 ms	29.4 g	@ 27.6 ms
10 LEFT REAR DOOR MIDREAR LATERAL	PRE	1570 mm	-820 mm	620 mm				
	POST	NA	NA	NA	211.0 g	@ 12.9 ms	80.7 g	@ 17.5 ms
11 LEFT REAR DOOR UPPER CENTERLINE LATERAL	PRE	1735 mm	-820 mm	1085 mm				
	POST	NA	NA	NA	131.6 g	@ 18.1 ms	54.9 g	@ 37.4 ms
12 LEFT LOWER B-POST LATERAL	PRE	2295 mm	-750 mm	510 mm				
	POST	NA	NA	NA	82.3 g	@ 6.8 ms	25.8 g	@ 33.9 ms

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302

TEST NUMBER: 011206 No. LOCATION		X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
13 LEFT MIDDLE B-POST	PRE	2245 mm	-770 mm	1130 mm				
	POST	NA	NA	NA				
LATERAL					107.0 g	@ 9.0 ms	46.5 g	@ 20.2 ms
14 LEFT LOWER A-POST	PRE	3276 mm	-790 mm	630 mm				
	POST	NA	NA	NA				
LATERAL[1]					1541.0 g	@ 85.1 ms	1561.5 g	@ 26.3 ms
15 LEFT MIDDLE A-POST	PRE	3263 mm	-790 mm	940 mm				
	POST	NA	NA	NA				
LATERAL					26.6 g	@ 1.8 ms	6.2 g	@ 40.6 ms
16 LEFT FRONT SEAT TRACK	PRE	2590 mm	-740 mm	480 mm				
	POST	NA	NA	NA				
LATERAL					81.3 g	@ 13.1 ms	33.9 g	@ 17.9 ms
17 LEFT REAR SEAT TRACK	PRE	1585 mm	-740 mm	545 mm				
	POST	NA	NA	NA				
LATERAL[1]					74.3 g	@ 12.1 ms	1536.9 g	@ 43.3 ms
18 VEHICLE CENTER	PRE	2560 mm	0 mm	690 mm				
OF GRAVITY	POST	2560 mm	0 mm	645 mm				
LONGITUDINAL					7.9 g	@ 35.8 ms	10.1 g	@ 24.4 ms
LATERAL					50.8 g	@ 31.8 ms	32.2 g	@ 41.2 ms
VERTICAL					10.2 g	@ 21.0 ms	13.2 g	@ 37.9 ms
RESULTANT					51.8 g	@ 31.9 ms		

REFERENCE: X: + FORWARD FROM REAR BUMPER
Y: + RIGHTWARD FROM VEHICLE CENTERLINE
Z: + UPWARD FROM GROUND LEVEL

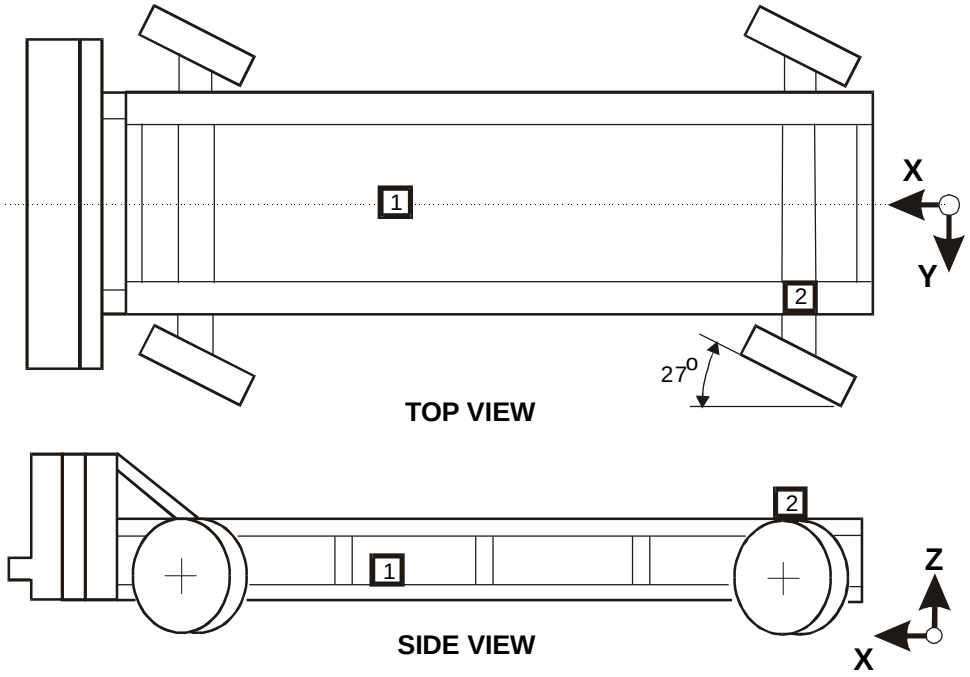
[1] See DATA ACQUISITION EXPLANATIONS

For acceleration data sign convention, see Report Sign Convention in Appendix D.

Data Sheet 14

MDB Accelerometer Locations and Data Summary

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302



Accel. No.	Location	Coordinates (millimeters) X*	Y*	Z*	Positive Direction Max. (g)	Time (ms)	Negative Direction Max. (g)	Time (ms)
1	MDB Center of Gravity	1850	0	510				
	Longitudinal X				2.2	100.5	-24.6	39.8
	Lateral Y				0.8	207.3	-10.6	22.8
	Vertical Z				9.3	25.3	-7.3	38.9
	Resultant R				26.1	39.4		
2	Rear Frame Member	413	-645	635				
	Longitudinal X				2.7	59.1	-4.0	25.3
	Lateral Y				29.3	38.6	-3.0	108.7

*Reference: X = Rear Bumper (+ Forward)

Y = Vehicle Centerline (+ To Right)

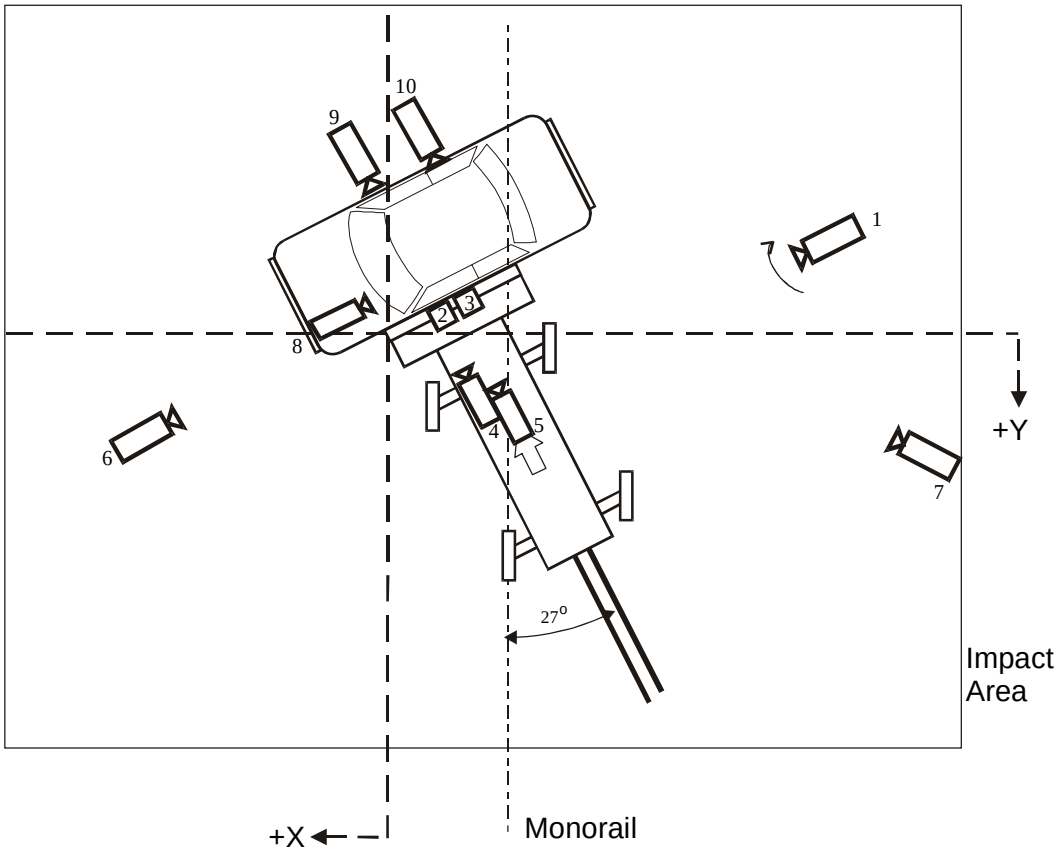
Z = Ground Level (+ Up)

All measurements accurate to within ±3 mm.

Data Sheet 15

High-Speed Camera Locations and Data Summary

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302



Camera Number	Location	Location, mm X	Y	Z	Lens (mm)	Speed (fps)
1	Real-time Panning	N/A	N/A	N/A	16	24
2	Overhead wide	N/A	N/A	7620	8.5	1000
3	Overhead tight	N/A	N/A	7620	25	1000
4	Onboard MDB left side	N/A	1740	790	13	1000
5	Onboard MDB center	N/A	2600	1400	25	N/A[1]
6	Front wide	4080	3020	1020	13	1005
7	Rear wide	-8900	2040	1080	13	1007
8	Onboard vehicle front	460	N/A	1380	8	997
9	Onboard side front door	270	-2020	1210	8	1010
10	Onboard side rear door	-1420	-2320	1273	8	1000

+X: Rearward from impact point
+Y: Toward right from impact point
+Z: Upward from ground level
[1] Film broke during event.

Section 5

Vehicle Fuel System Integrity

Data Sheet 16

FMVSS 301 Fuel System Integrity Data

NHTSA No.: M25302 Test Date: December 6, 2001

Vehicle Year/Make/Model/Body Style: 2002 Acura MDX Wagon

****

Test Vehicle Impact Type :

_____	Frontal (48.28 km/h)
_____	Oblique (48.28 km/h) with ____° barrier face first contacting the (driver/passenger) side
_____	Rear Moving Barrier (48.28 km/h)
_____	Lateral Moving Barrier (32.19 km/h)
X	Side Impact Moving Deformable Barrier (38.6 mph) contacting the Driver's side

Fuel Spillage Measurement:

	Actual	Maximum Allowed
1. From impact until vehicle motion ceases	0 g	28 g
2. For five-minute period after vehicle motion ceases	0 g	142 g
3. For next 25 minutes.	0 g	28 g/1 minute

Solvent Spillage Details :

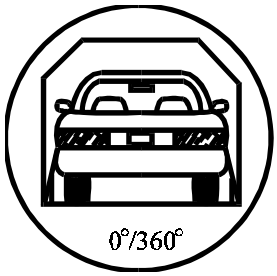
None

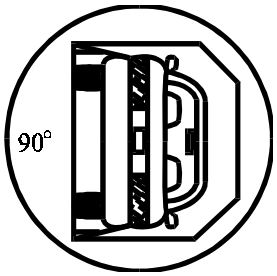
Data Sheet 17

FMVSS 301 Rollover Data

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302

0 - 90 Degrees





1. Determination of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time	1	minutes	2	seconds
(Spec. Range = 1 to 3 minutes)				
FMVSS 301 Position Hold Time +	5	minutes	0	seconds
Total	6	minutes	2	seconds
Next whole minute interval	7	minutes		

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

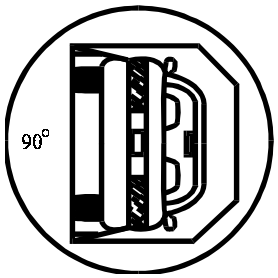
None

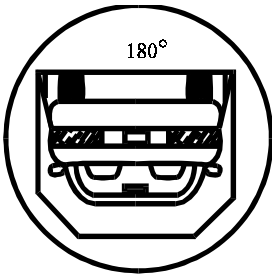
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302

90 - 180 Degrees





1. Determination of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time	1	minutes	2	seconds
(Spec. Range = 1 to 3 minutes)				
FMVSS 301 Position Hold Time +	5	minutes	0	seconds
Total	6	minutes	2	seconds
Next whole minute interval	7	minutes		

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

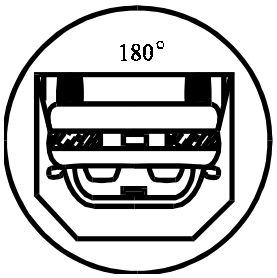
None

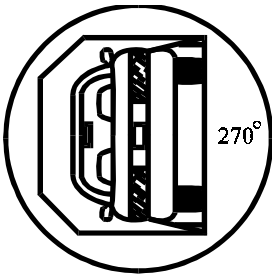
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302

180 - 270 Degrees





1. Determination of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time	1	minutes	2	seconds
(Spec. Range = 1 to 3 minutes)				
FMVSS 301 Position Hold Time +	5	minutes	0	seconds
Total	6	minutes	2	seconds
Next whole minute interval	7	minutes		

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

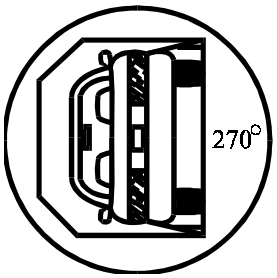
None

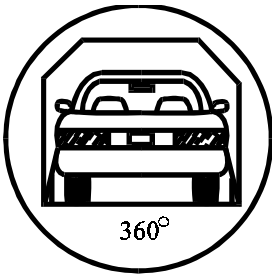
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2002 Acura MDX Wagon NHTSA No.: M25302

270 - 360 Degrees





1. Determination Of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time	1	minutes	2	seconds
(Spec. Range = 1 to 3 minutes)				
FMVSS 301 Position Hold Time +	5	minutes	0	seconds
Total	6	minutes	2	seconds
Next whole minute interval	7	minutes		

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None

Appendix A

Photographs

List of Photographs

List of Photographs, Cont'd.

Appendix B

Data Plots

Table of Data Plots

Driver and Passenger Instrumentation Plots

Head and Rib Acceleration Data - Filter Class 1000; Lower Spine Filter Class 180
Integration Data Filter Class 180; Contact Data - Filter Class 1000

Table of Data Plots Cont'd.

Test Vehicle Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

Table of Data Plots Cont'd.

Table of Data Plots Cont'd.

Moving Deformable Barrier Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

Contact Data - Filter Class 1000

Table of Data Plots Cont'd.

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - FIR100 Filtered

Appendix C

SID Configuration And Performance Verification Data

Summary
SID Pre-Test And Post-Test Calibration

Configured For Left Side Impact

Date: Pre: 11/28/01& 12/05/01; Post: 12/12/01 Laboratory Technician: Jack Willike

TRC Inc. Calibration Number: SN269 CAL01-02; SN270 CAL02-03

Test Parameter	Specification	SID 269		SID 270	
		Pre-Test	Post-Test	Pre-Test	Post-Test
SH - seated height (mm)	889-909	904.2	894.1	904.2	899.2
RH - Rib Height (mm)	502-520	504.7	510.5	502.9	514.3
HP - Hip Pivot Height (mm)	99 ref	99.1	99.0	99.1	99.0
RD - Rib from Back Line (mm)	229-241	238.8	234.9	236.2	236.2
KV - Knee Pivot from Back Line (mm)	511-526	515.6	523.2	520.7	523.2
SW - Knee Pivot to Floor (mm)	490-505	495.3	495.3	495.3	495.3
HW - Hip Width (mm)	356-391	375.9	378.5	375.9	378.5
Thorax Impacts					
Temperature (°C)	18.9-25.5	21.1	21.7	21.7	21.1
Relative Humidity (%)	10-70	34	28	38	27
Probe Speed (m/s)	4.27-4.33	4.28	4.32	4.26	4.30
Upper Rib (g's)	37-46	39.1	41.7	41.0	40.2
Lower Rib (g's)	37-46	38.2	40.6	39.5	39.8
Lower Spine (g's)	15-22	16.9	19.0	18.5	18.2
Pelvis Impacts					
Temperature (°C)	18.9-25.5	21.1	21.7	22.2	21.1
Relative Humidity (%)	10-70	34	30	37	26
Probe Speed (m/s)	4.27-4.33	4.28	4.29	4.27	4.30
Pelvis (g's)	40-60	54.3	58.7	43.2	47.5

Calibration Test Results

Pre-Test

SID: 269

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Pelvis Impact Tests:	The lateral pelvis passed all impact test requirements.
Thoracic Shock Absorbers:	The thorax passed all shock absorber requirements.
Abdominal Compression Tests:	The abdomen met the Part 572B compression test requirements.
Lumbar Flexion Tests:	The dummy met the Part 572B lumbar flexion test requirements.

Calibration Test Results

Pre-Test

SID: 270

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Pelvis Impact Tests:	The lateral pelvis passed all impact test requirements.
Thoracic Shock Absorbers:	The thorax passed all shock absorber requirements (tested on November 23, 2001 for previous calibration series).
Abdominal Compression Tests:	The abdomen met the Part 572B compression test requirements.
Lumbar Flexion Tests:	The dummy met the Part 572B lumbar flexion test requirements.

Calibration Test Results

Post-Test

SID: 269

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Pelvis Impact Tests:	The lateral pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen met the Part 572B compression test requirements.
Lumbar Flexion Tests:	The dummy met the Part 572B lumbar flexion test requirements.

Calibration Test Results

Post-Test

SID: 270

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Pelvis Impact Tests:	The lateral pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen met the Part 572B compression test requirements.
Lumbar Flexion Tests:	The dummy met the Part 572B lumbar flexion test requirements.

Transportation Research Center Inc. Hybrid III Dummy Pre-Use Inspection

Type: SID S/N: 269 Mfr: First Tech Test Date: 12/06/01
Proj./Seg. No.: 19970454-3200 Test Eng.: Ginny Watters

Item	Pre-Use	
Head:		
Head Ballast Condition	X	
Accelerometer Mount Bolts and Cables	X	
Skull Cap Bolts	X	
Accelerometer Cable Exit (left or right)	(Left)	(Right) X
Neck:		
* Rubber Condition and Separation From End Caps	X	
Thorax:		
Stacked Shoulder Foams and Bolts	X	
* Rib Cage Spring and Support Assembly	X	
* Rib Cage Bolts	X	
* Damper Rear Attachment Ring, Pivot Pins, and Bracket (No Damper Pot) Left	X	
* Location and Adjustment of Chest Pot Bracket and Collars	X	
* Chest Pot Rod End Nuts and Eyebolt	N/A	
Arm Foam Orientation	X	
Thorax/Lumbar Spine Bolts	X	
Pelvis:		
Tightness and Alignment of H-Point Tool Insert	X	
* Hips Range of Motion and 1-2g Adjustment (before calibration only)	X	
Upper Femur Bolt Adjustment and Position	X	
Check Spine Kits (Yellow tape = Kits/No Tape = No kits)	(With)	(Without)
Legs and Feet:		
Femur Load Cell Bolts (40 ft/lbs.)	X	
Breakaway Femur Bolts (5-6 ft/lbs)	X	
Knee Joint Function and Range of Motion	X	
Leg Skin Condition and Position	X	
Ankle Range of Motion	X	
Foot Condition	X	
Other:		
Cleanliness	X	
Target Position	X	
Clothes Mid-Calf Pants	X	
Shoes	X	
Knee and Ankle One G Joint Adjustments	X	

Inspection Completed By: J. Clarridge Date: 12/05/01

Transportation Research Center Inc. Hybrid III Dummy Pre-Use Inspection

Type: SID S/N: 270 Mfr: First Tech Test Date: 12/06/01
Proj./Seg. No.: 19970454-3200 Test Eng.: Ginny Watters

Item	Pre-Use	
Head:		
Head Ballast Condition	X	
Accelerometer Mount Bolts and Cables	X	
Skull Cap Bolts	X	
Accelerometer Cable Exit (left or right)	(Left)	(Right) X
Neck:		
* Rubber Condition and Separation From End Caps	X	
Thorax:		
Stacked Shoulder Foams and Bolts	X	
* Rib Cage Spring and Support Assembly	X	
* Rib Cage Bolts	X	
* Damper Rear Attachment Ring, Pivot Pins, and Bracket (No Damper Pot) Left	X	
* Location and Adjustment of Chest Pot Bracket and Collars	X	
* Chest Pot Rod End Nuts and Eyebolt	N/A	
Arm Foam Orientation	X	
Thorax/Lumbar Spine Bolts	X	
Pelvis:		
Tightness and Alignment of H-Point Tool Insert	X	
* Hips Range of Motion and 1-2g Adjustment (before calibration only)	X	
Upper Femur Bolt Adjustment and Position	X	
Check Spine Kits (Yellow tape = Kits/No Tape = No kits)	(With)	(Without)
Legs and Feet:		
Femur Load Cell Bolts (40 ft/lbs.)	X	
Breakaway Femur Bolts (5-6 ft/lbs)	X	
Knee Joint Function and Range of Motion	X	
Leg Skin Condition and Position	X	
Ankle Range of Motion	X	
Foot Condition	X	
Other:		
Cleanliness	X	
Target Position	X	
Clothes Mid-Calf Pants	X	
Shoes	X	
Knee and Ankle One G Joint Adjustments	X	

Inspection Completed By: J. Clarridge Date: 12/05/01

Transportation Research Center Inc. Hybrid III Dummy Post-Use Inspection

Type: SID S/N: 269 Mfr: First Tech Test Date: 12/06/01
Proj./Seg. No.: 19970454-3200 Test Eng.: Ginny Watters

Item	Post-Use
Head:	
Head Skin Condition	X
Head Ballast Condition	X
Neck:	
Rubber Condition and Separation from End Caps	X
Thorax:	
Jacket Condition	X
Arm Foam Condition	X
Damper and Movement and Condition	X
Rib Cage Spring and Support Assembly Condition	X
Rib Wrap Condition	X
Abdomen Condition	X
Thorax/Lumbar Spine Bolts	X
Lumbar Spine Condition and Separation from End Caps	X
Pelvis:	
Illiac Crest Bone	X
Flesh Condition	X
Hip Range of Motion	X
Legs and Feet:	
Knee Skins and Castings Condition	X
Leg Skin Condition	X
Foot Condition	X
Knee Joint Range of Motion	X
Ankle Range of Motion	X

Notes: No damage to report.

Inspection Completed By: J. Clarridge Date: 12/11/01

Type: SID S/N: 270 Mfr: First Tech Test Date: 12/06/01
Proj./Seg. No.: 19970454-3200 Test Eng.: Ginny Watters

Item	Post-Use
Head:	
Head Skin Condition	X
Head Ballast Condition	X
Neck:	
Rubber Condition and Separation from End Caps	X
Thorax:	
Jacket Condition	X
Arm Foam Condition	X
Damper and Movement and Condition	X
Rib Cage Spring and Support Assembly Condition	X
Rib Wrap Condition	X
Abdomen Condition	X
Thorax/Lumbar Spine Bolts	X
Lumbar Spine Condition and Separation from End Caps	X
Pelvis:	
Illiac Crest Bone	X
Flesh Condition	X
Hip Range of Motion	X
Legs and Feet:	
Knee Skins and Castings Condition	X
Leg Skin Condition	X
Foot Condition	X
Knee Joint Range of Motion	X
Ankle Range of Motion	X

Notes: No damage to report.

Inspection Completed By: J. Clarridge Date: 12/11/01

Dummy 269n **Type** SID **Description** NHTSA - 269n SID-LEFT IMP. CONFIG. CAL DUE 5-17-02(DKS 11-28-01)J211

Chsname	Location	Model	Name	Manufacturer	Sens./mV/V/U	Fullscale	Caldate	Pos Output	Flip
HEDXG	Head Accel X	7264-2000TZ	J28754	Endevco	0.02814 G	2000	11/21/2001	Rwd	1
HEDYG	Head Accel Y	7264-2000TZ	J27345	Endevco	0.02762 G	2000	11/21/2001	Lft	1
HEDZG	Head Accel Z	7264-2000TZ	J27116	Endevco	0.02531 G	2000	11/21/2001	Up	1
!NEKXF	Neck Force X	1716A	1716A-858-FX	Denton	0.000193719 N	8896.4	08/16/2001	Hd Fd,Cst Rr	1
!NEKYF	Neck Force Y	1716A	1716A-858-FY	Denton	0.000186907 N	8896.4	08/16/2001	Hd Lt,Cst Rt	0
!NEKZF	Neck Force Z	1716A	1716A-858-FZ	Denton	0.000096144 N	13344.6	08/16/2001	Hd Up,Cst Dn	0
!NEKXM	Neck Moment X	1716A	1716A-858-MX	Denton	0.005827965 NM	282.5	08/16/2001	Rt Ear to Rt Shld	1
!NEKYM	Neck Moment Y	1716A	1716A-858-MY	Denton	0.005966726 NM	282.5	08/16/2001	Chn to Strnm	0
!NEKZM	Neck Moment Z	1716A	1716A-858-MZ	Denton	0.008246372 NM	282.5	08/16/2001	Chn to Lt Shld	0
LURYG	Left Upper Rib Y	7264-2000TZ	J34509	Endevco	0.03097 G	2000	11/21/2001	Rgt	0
LURYR	Left Upper Rib Red Y	7264-2000TZ	ANBH3	Endevco	0.0227 G	2000	11/21/2001	Rgt	0
LLRYG	Left Lower Rib Y	7264-2000TZ	AGRG8	Endevco	0.02104 G	2000	11/21/2001	Rgt	0
LLRYR	Left Lower Rib Red Y	7264-2000TZ	J20005	Endevco	0.02348 G	2000	11/21/2001	Rgt	0
T12YG	Lower Spine Y	7264-2000TZ	J27929	Endevco	0.0247 G	2000	11/23/2001	Lft	1
T12YR	Lower Spine Red Y	7264-2000TZ	J27948	Endevco	0.02399 G	2000	11/23/2001	Lft	1
PEVYG	Pelvis Accel Y	7264-2000TZ	J27503	Endevco	0.02951 G	2000	11/23/2001	Lft	1
PEVYR	Pelvis Accel Red Y	7264-2000TZ	J34631	Endevco	0.02645 G	2000	11/23/2001	Rgt	0

! Indicates that this channel is not included in the present dummy configuration.

Dummy 270n **Type** SID **Description** NHTSA - 270n SID-LEFT IMP. CONFIG. CAL DUE 5-17-02(DKS 11-27-01)J211

Chsname	Location	Model	Name	Manufacturer	Sens./mV/V/U	Fullscale	Caldate	Pos Output	Flip
HEDXG	Head Accel X	7264-2000TZ	J26885	Endevco	0.0235 G	2000	11/21/2001	Rwd	1
HEDYG	Head Accel Y	7264-2000TZ	J26864	Endevco	0.02387 G	2000	11/21/2001	Lft	1
HEDZG	Head Accel Z	7264-2000TZ	J27950	Endevco	0.02575 G	2000	11/21/2001	Up	1
!NEKXF	Neck Force X	1716A	1716A-858-FX	Denton	0.000193719 N	8896.4	08/16/2001	Hd Fd,Cst Rr	1
!NEKYF	Neck Force Y	1716A	1716A-858-FY	Denton	0.000186907 N	8896.4	08/16/2001	Hd Lt,Cst Rt	0
!NEKZF	Neck Force Z	1716A	1716A-858-FZ	Denton	0.000096144 N	13344.6	08/16/2001	Hd Up,Cst Dn	0
!NEKXM	Neck Moment X	1716A	1716A-858-MX	Denton	0.005827965 NM	282.5	08/16/2001	Rt Ear to Rt Shld	1
!NEKYM	Neck Moment Y	1716A	1716A-858-MY	Denton	0.005966726 NM	282.5	08/16/2001	Chn to Strnm	0
!NEKZM	Neck Moment Z	1716A	1716A-858-MZ	Denton	0.008246372 NM	282.5	08/16/2001	Chn to Lt Shld	0
LURYG	Left Upper Rib Y	7264-2000TZ	J34404	Endevco	0.03039 G	2000	11/21/2001	Rgt	0
LURYGR	Left Upper Rib Red Y	7264-2000TZ	J34078	Endevco	0.03005 G	2000	11/21/2001	Rgt	0
LLRYG	Left Lower Rib Y	7264-2000TZ	J34630	Endevco	0.02634 G	2000	11/21/2001	Rgt	0
LLRYGR	Left Lower Rib Red Y	7264-2000TZ	J34438	Endevco	0.03322 G	2000	11/21/2001	Rgt	0
T12YG	Lower Spine Y	7264-2000TZ	J34352	Endevco	0.02249 G	2000	11/23/2001	Lft	1
T12YGR	Lower Spine Red Y	7264-2000TZ	J22046	Endevco	0.0267 G	2000	11/23/2001	Lft	1
PEVYG	Pelvis Accel Y	7264-2000TZ	J20561	Endevco	0.02424 G	2000	11/23/2001	Lft	1
PEVYGR	Pelvis Accel Red Y	7264-2000TZ	J27111	Endevco	0.02106 G	2000	11/23/2001	Rgt	0

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! Indicates that this channel is not included in the present dummy configuration.

011206

Appendix D

Test Equipment List and Calibration Information

Report Sign Convention
SAE J211 MAR95

Accelerometers:	+X: Forward	
	+Y: Rightward	
	+Z: Downward	
Potentiometers:	+Chest longitudinal deflection:	Outward
	+Chest lateral deflection:	Rightward
	+Seat belt displacement:	Outward
	+Seat belt extension:	Elongation
	+Knee slider displacement:	Distance between femur and tibia increased (in relation to a seated dummy)
Rotation potentiometers:		
	+About the X-axis:	Left foot-eversion
		Right foot-inversion
	+About the Y-axis:	Left/right foot-dorsiflexion
	+About the Z-axis:	Left foot-internal
		Right foot-external
Load cells:	+Femur force:	Tension
	+Seat belt force:	Tension
	+Barrier force:	Tension
Neck load cells:	+X force:	Head pushed rearward
	+Y force:	Head pushed leftward
	+Z force:	Head pulled upward (tension on neck)
	+X moment:	Left ear rotating toward left shoulder
	+Y moment:	Chin rotating toward chest
	+Z moment:	Chin rotating toward left shoulder
Tibia load cells:	+X force:	Ankle forward, knee rearward
	+Y force:	Ankle rightward, knee leftward
	+Z force:	Tension
	+X moment:	Bottom of tibia moving leftward
	+Y moment:	Bottom of tibia moving rearward

Frequency Response Classes
SAE J211 MAR95

Typical Test Measurements	Channel Class
Vehicle Structural Accelerations for use in:	
Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180
Barrier Face Forces	60
Belt Restraint System Loads	60
Anthropomorphic Test Device	
Head accelerations (linear and angular)	1000
Neck	
Forces	1000
Moments	600
Thorax	
Spine accelerations[1]	180
Rib accelerations[1]	1000
Sternum accelerations	1000
Deflections	180
Lumbar	
Forces	1000
Moments	1000
Pelvis	
Accelerations[1]	1000
Forces	1000
Moments	1000
Femur/Knee/Tibia/Ankle	
Forces	600
Moments	600
Displacements	180
Sled Accelerations	60
Steering Column Loads	600
Head form Accelerations	1000

[1] The rib, spine, and pelvis data is also processed with the Finite Impulse Response (FIR100) filter routine for injury criteria evaluation. Plots with SAE and FIR100 filtering are included in Appendix B.

The direction column on the following sheets describes the transducer output as mounted and wired in the test location. See Report Sign Convention sheet for description of data output as presented in the report: channels were adjusted in post-acquisition processing to conform to J211 MAR95.

Channel Report

12/5/2001 5:46:13 PM

Name of Test 011206 **System** K3600 **Name of DAU** DAU1

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range		Pol.	Cal. Date/Status		Group	Mfg.	Model
1000	EVENT	SYNC1	SYNC1		10.24	V	+	11/21/2002	---	-1	TRC	Event
1001	J28754	HEDXG1	Head Accel X	Rwd	808.65514	G	-	11/21/2001	OK	269n	Endevco	7264-2000TZ
1002	J27345	HEDYG1	Head Accel Y	Lft	805.96921	G	-	11/21/2001	OK	269n	Endevco	7264-2000TZ
1003	J27116	HEDZG1	Head Accel Z	Up	793.30033	G	-	11/21/2001	OK	269n	Endevco	7264-2000TZ
1004	J34509	LURYG1	Left Upper Rib Y	Rgt	806.44526	G	+	11/21/2001	OK	269n	Endevco	7264-2000TZ
1005	ANBH3	LURYR1	Left Upper Rib Red Y	Rgt	805.53807	G	+	11/21/2001	OK	269n	Endevco	7264-2000TZ
1006	AGRG8	LLRYG1	Left Lower Rib Y	Rgt	797.85576	G	+	11/21/2001	OK	269n	Endevco	7264-2000TZ
1007	J20005	LLRYR1	Left Lower Rib Red Y	Rgt	792.9379	G	+	11/21/2001	OK	269n	Endevco	7264-2000TZ
1008	J27929	T12YG1	Lower Spine Y	Lft	398.62971	G	-	11/23/2001	OK	269n	Endevco	7264-2000TZ
1009	J27948	T12YR1	Lower Spine Red Y	Lft	398.92011	G	-	11/23/2001	OK	269n	Endevco	7264-2000TZ
1010	J27503	PEVYG1	Pelvis Accel Y	Lft	398.85174	G	-	11/23/2001	OK	269n	Endevco	7264-2000TZ
1011	J34631	PEVYR1	Pelvis Accel Red Y	Rgt	399.11913	G	+	11/23/2001	OK	269n	Endevco	7264-2000TZ
1012	J26885	HEDXG4	Head Accel X	Rwd	806.93459	G	-	11/21/2001	OK	270n	Endevco	7264-2000TZ
1013	J26864	HEDYG4	Head Accel Y	Lft	794.42660	G	-	11/21/2001	OK	270n	Endevco	7264-2000TZ
1014	J27950	HEDZG4	Head Accel Z	Up	795.33981	G	-	11/21/2001	OK	270n	Endevco	7264-2000TZ
1015	J34404	LURYG4	Left Upper Rib Y	Rgt	802.26892	G	+	11/21/2001	OK	270n	Endevco	7264-2000TZ
1016	J34078	LURYR4	Left Upper Rib Red Y	Rgt	792.47765	G	+	11/21/2001	OK	270n	Endevco	7264-2000TZ
1017	J34630	LLRYG4	Left Lower Rib Y	Rgt	793.39253	G	+	11/21/2001	OK	270n	Endevco	7264-2000TZ
1018	J34438	LLRYR4	Left Lower Rib Red Y	Rgt	790.3796	G	+	11/21/2001	OK	270n	Endevco	7264-2000TZ
1019	J34352	T12YG4	Lower Spine Y	Lft	399.39778	G	-	11/23/2001	OK	270n	Endevco	7264-2000TZ
1020	J22046	T12YR4	Lower Spine Red Y	Lft	399.50062	G	-	11/23/2001	OK	270n	Endevco	7264-2000TZ
1021	J20561	PEVYG4	Pelvis Accel Y	Lft	398.53042	G	-	11/23/2001	OK	270n	Endevco	7264-2000TZ
1022	J27111	PEVYR4	Pelvis Accel Red Y	Rgt	398.54903	G	+	11/23/2001	OK	270n	Endevco	7264-2000TZ
1023	J35794	RFSXG1	RGT SIDE SILL FRNT ST X	FWD	400.94284	G	+	11/1/2001	OK	-1	Endevco	7264-2000TZ
1024	J35805	RFSYG1	RGT SIDE SILL FRNT ST Y	LT	1006.6059	G	-	7/11/2001	OK	-1	Endevco	7264-2000TZ
1025	J35802	RFSZG1	RGT SIDE SILL FRNT ST Z	UP	400.12817	G	-	8/29/2001	OK	-1	Endevco	7264-2000TZ
1026	J40097	RRSXG1	RGT SIDE SILL RR ST X	FWD	399.02737	G	+	11/15/2001	OK	-1	Endevco	7264-2000TZ
1027	J40098	RRSYG1	RGT SIDE SILL RR ST Y	LT	1011.1683	G	-	11/15/2001	OK	-1	Endevco	7264-2000TZ
1028	J40073	RRSZG1	RGT SIDE SILL RR ST Z	UP	399.95001	G	-	11/1/2001	OK	-1	Endevco	7264-2000TZ
1029	J38530	RDKXG1	RR FLRPAN ABV AXLE X	RR	1007.3584	G	-	9/7/2001	OK	-1	Endevco	7264-2000TZ

Channel Report

1030	J38047	RDKYG1	RR FLRPAN ABV AXLE Y	LT	1007.0018	G	-	9/19/2001	OK	-1	Endevco	7264-2000TZ
1031	J38017	RDKZG1	RR FLRPAN ABV AXLE Z	UP	993.80811	G	-	8/10/2001	OK	-1	Endevco	7264-2000TZ
1032	J38316	LFSYG1	LFT SIDE SILL FRNT ST Y	RT	988.35021	G	+	10/29/2001	OK	-1	Endevco	7264-2000TZ
1033	J37958	LRSYG1	LFT SIDE SILL RR ST Y	LT	990.47251	G	-	11/1/2001	OK	-1	Endevco	7264-2000TZ
1034	J36783	LFCYG1	LFT FRNT DOOR CTRLN Y	RT	1526.8086	G	+	9/7/2001	OK	-1	Endevco	7264-2000TZ
1035	J39624	RRTYG1	RGT RR OCP COMP Y	RT	1508.7223	G	+	10/29/2001	OK	-1	Endevco	7264-2000TZ
1036	J35849	LFMYG1	LFT FRNT DOOR MIDRR Y	RT	1510.9931	G	+	11/19/2001	OK	-1	Endevco	7264-2000TZ
1037	J36108	LFUYG1	LFT FRNT DOOR UPPER C/L	RT	1483.7999	G	+	11/19/2001	OK	-1	Endevco	7264-2000TZ
1038	J30471	LRMYG1	LFT RR DORR MIDREAR Y	RT	1520.0095	G	+	10/30/2001	OK	-1	Endevco	7264-2000TZ
1039	J30467	LRUYG1	LT RR DR UPPER CL Y	RT	1467.3851	G	+	10/30/2001	OK	-1	Endevco	7264-2000TZ
1040	J36576	LLAYG1	LFT LOWER A-POST Y	LT	1522.4502	G	-	12/5/2001	OK	-1	Endevco	7264-2000TZ
1041	J37159	LUAYG1	LFT MID A-POST Y	LT	1484.8327	G	-	12/5/2001	OK	-1	Endevco	7264-2000TZ
1042	J38826	LLBYG1	LFT LOWER B-POST Y	RT	1507.1235	G	+	12/5/2001	OK	-1	Endevco	7264-2000TZ
1043	J38793	LUBYG1	LFT MID B-POST Y	RT	1514.0090	G	+	12/5/2001	OK	-1	Endevco	7264-2000TZ
1044	J22013	LFTYG1	LFT FRNT ST TRK Y	RT	1504.4001	G	+	9/7/2001	OK	-1	Endevco	7264-2000TZ
1045	J30211	LRTYG1	LFT RR ST TR Y	RT	1502.1491	G	+	11/1/2001	OK	-1	Endevco	7264-2000TZ
1046	J37089	VCGXG1	VEH C/G X	FWD	996.4773	G	+	7/17/2001	OK	-1	Endevco	7264-2000TZ
1047	J37990	VCGYG1	VEH C/G Y	LT	991.8348	G	-	9/7/2001	OK	-1	Endevco	7264-2000TZ
1048	J37152	VCGZG1	VEH C/G Z	UP	1001.0069	G	-	7/16/2001	OK	-1	Endevco	7264-2000TZ

Channel Report

12/5/2001 5:46:14 PM

Name of Test 011206 **System** MINIDAU **Name of DAU** DAU7

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range		Pol.	Cal. Date/Status		Group	Mfg.	Model
7001	EVENT	SYNC7	SYNC7		5.12	V	+	11/21/2002	OK	-1	TRC	Event
7002	J38413	BCGXG1	MDB CG X-AXIS	FWD	603.93026	G	+	9/7/2001	OK	-1	Endevco	7264-2000TZ
7003	J38570	BCGYG1	MDB CG Y-AXIS	LT	598.30558	G	-	9/7/2001	OK	-1	Endevco	7264-2000TZ
7004	J38007	BCGZG1	MDB CG Z-AXIS	UP	606.08213	G	-	9/19/2001	OK	-1	Endevco	7264-2000TZ
7005	J37996	LRRXG1	MDB LT RR X-AXIS	FWD	596.27792	G	+	9/7/2001	OK	-1	Endevco	7264-2000TZ
7006	J38421	LRRYG1	MDB LT RR Y-AXIS	LT	599.18782	G	-	10/29/2001	OK	-1	Endevco	7264-2000TZ

Digital and System Channel Report

2001-12-05 17:46:02

Name of Test 011206 **System** K3600 **Name of DAU** DAU1

enabled	Channel	Short Name	Type	Data File	Module Type
Yes	1500	DIG0	dig0	DAT11500	KM3650 Sequencer

bit position	bit selector	short name	long name	description
MSB = bit 15	1	EVENT	EVENT	
bit 14	1	SHLET1	DRIV. SHLD CONTACT SWTCH	A
bit 13	1	PEVET1	DRIV. PLVS CONTACT SWTCH	B
bit 12	1	SHLET4	LT RR PNGR SHLD SWITCH	C
bit 11	1	PEVET4	LT RR PNGR PELVIS SWITCH	D
bit 10	0			
bit 09	0			
bit 08	0			
bit 07	0			
bit 06	0			
bit 05	0			
bit 04	0			
bit 03	0			
bit 02	0			
bit 01	0			
LSB = bit 00	0			

PLASCORE

SIDE IMPACTOR BARRIER CERTIFICATION

Date: September 12, 2001

To: Transportation Research
Ship & Rec Bldg 50
10820 St. Route 347
East Liberty, OH 43319-0367

PURCHASE ORDER INFORMATION

Customer P.O. Number: 14572
Work Order Number: 10512
Quantity: 05 pieces

CORE INFORMATION

Core Type: PCGA-1/4-5.2-P-3003-T
Measured Cell Size: 0.250 inches
Measured Density: 5.2 pcf

Unit Numbers: 033A0801 - 05 pcs.

This is to certify that the aluminum honeycomb core supplied, under the unit numbers provided, meets the crush requirements of 232 – 250 psi as per DWG# DSL-1285.

QA Plascore Accept 001

Quality Control Representative
Karl D. Zwaanstra

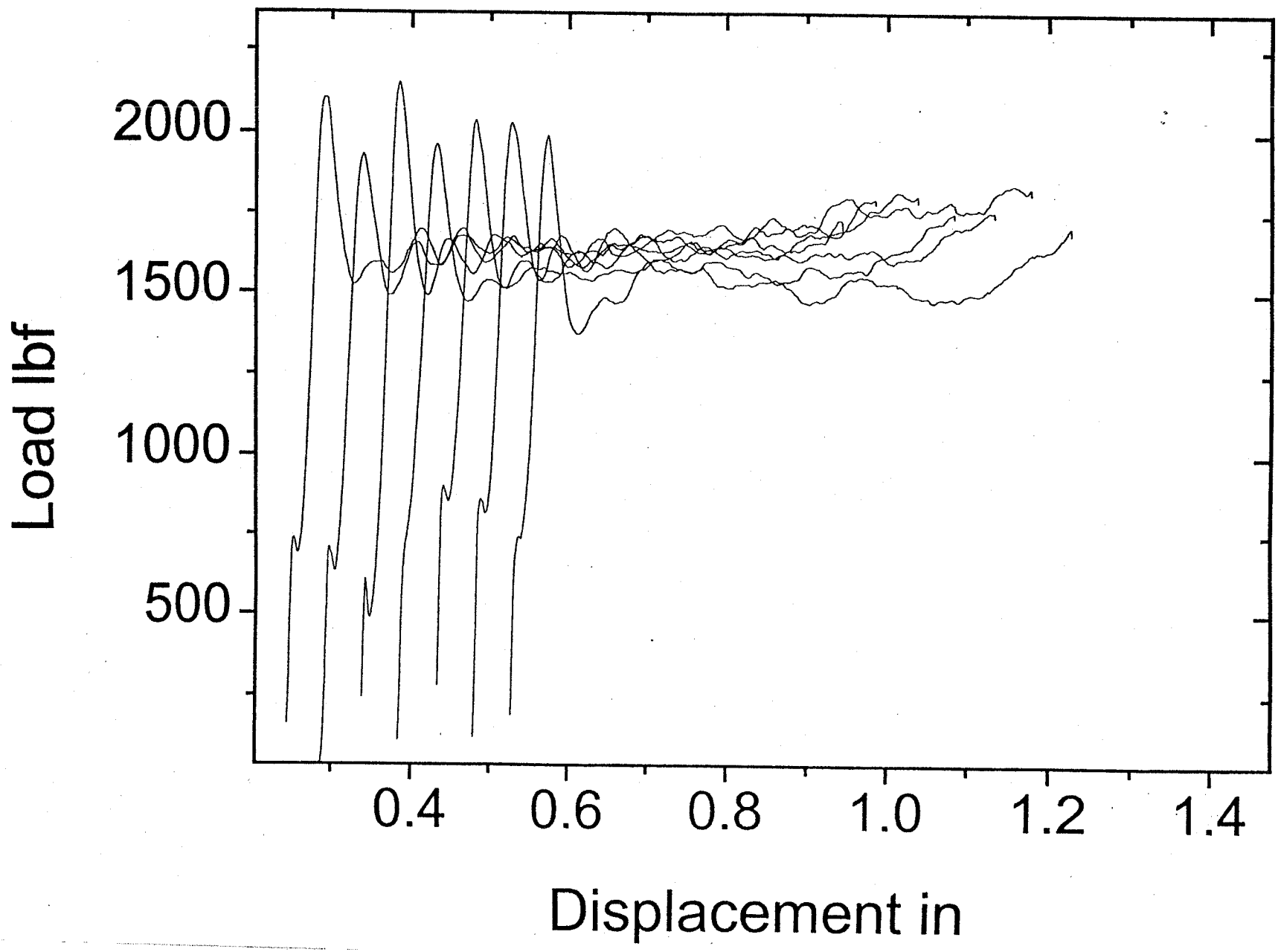
PLASCORE

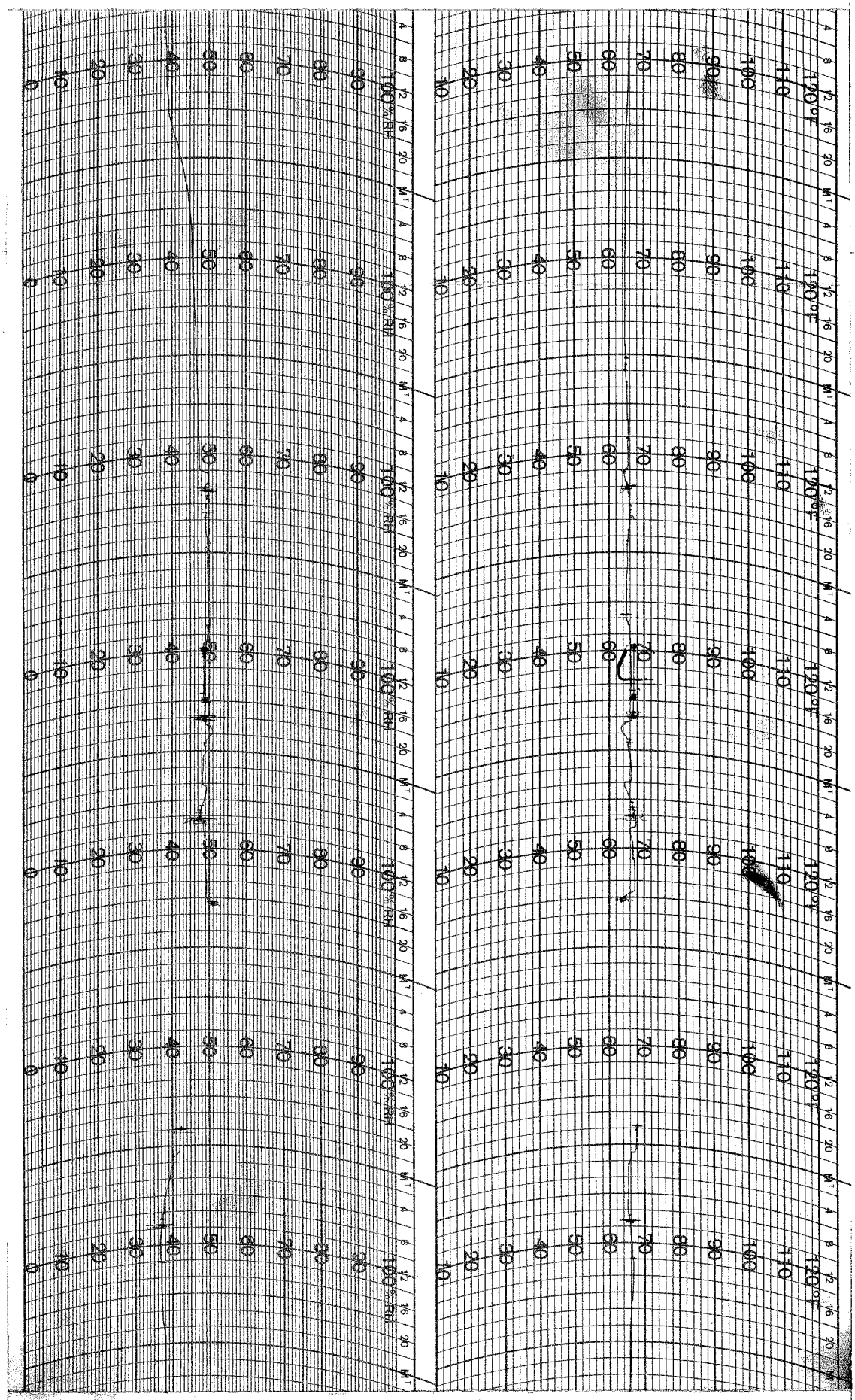
Crush Data
45 psi +/- 2.5 psi per DWG # DSL-1285

Block Number: **068A0801**

Specimen Number	Zone 1	Zone 2	Zone 3
1	45.98	46.33	46.52
2	45.71	46.28	47.42
3	45.19	45.32	47.18
4	45.22	44.95	45.65
5	45.00	44.88	45.24
6	45.49	46.79	47.45
7	45.19	45.06	45.06

BLOCK # 068A0801 Sample ID: IN323525





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