

Report Number: NCAP-TRC-02-003

New Car Assessment Program
“Side Impact Testing”

Mitsubishi Motors
2002 Mitsubishi Montero Sport

NHTSA Number: M25603

Transportation Research Center Inc.
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P. O. Box B-67
East Liberty, OH 43319



December 28, 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: _____

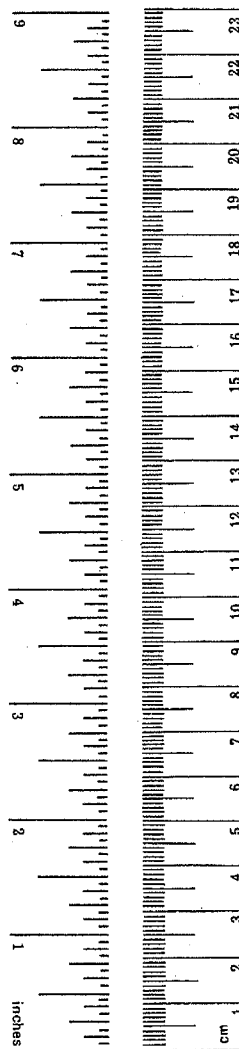
Acceptance Date: _____

METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

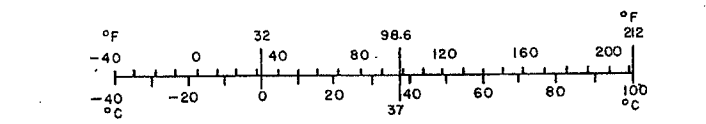
Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi 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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		14. Sponsoring Agency Code NPS-10																															
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 Mitsubishi Montero Sport, 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 13, 2001. The impact velocity of the Moving Deformable Barrier (MDB) was 62.0 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21° C. The target vehicle's post-test maximum crush was 350 mm at Level 1. The test or target vehicle's performance is given below (data filtered FIR100): <table border="0"> <thead> <tr> <th></th> <th><u>Front SID</u></th> <th></th> <th><u>Rear SID</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration:</td> <td><u>34.2</u></td> <td>g's</td> <td><u>24.5</u></td> <td>g's</td> </tr> <tr> <td>Left Lower Rib Acceleration:</td> <td><u>34.3</u></td> <td>g's</td> <td><u>24.1</u></td> <td>g's</td> </tr> <tr> <td>Lower Spine Acceleration:</td> <td><u>49.0</u></td> <td>g's</td> <td><u>26.9</u></td> <td>g's</td> </tr> <tr> <td>Thoracic Trauma Index, (TTI):</td> <td><u>41.7</u></td> <td>g's</td> <td><u>25.7</u></td> <td>g's</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td><u>53.9</u></td> <td>g's</td> <td><u>42.3</u></td> <td>g's</td> </tr> </tbody> </table> 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.					<u>Front SID</u>		<u>Rear SID</u>		Left Upper Rib Acceleration:	<u>34.2</u>	g's	<u>24.5</u>	g's	Left Lower Rib Acceleration:	<u>34.3</u>	g's	<u>24.1</u>	g's	Lower Spine Acceleration:	<u>49.0</u>	g's	<u>26.9</u>	g's	Thoracic Trauma Index, (TTI):	<u>41.7</u>	g's	<u>25.7</u>	g's	Pelvis Acceleration (PEV):	<u>53.9</u>	g's	<u>42.3</u>	g's
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17. Key Words New Car Assessment Program (NCAP) Side Impact MDB Side Impact Dummy (SID)		18. Distribution Statement <u>Copies of this report are available from:</u> NHTSA Technical Reference Division Room 5108 (NAD-52), 400 Seventh Street, S.W. Washington, DC 20590 Telephone No. (202) 366-4946 Attn: Robert Hornicle																															
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Section 1

Purpose and Test Procedure

Purpose and Test Procedure

This side impact test is part of the FY2002 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 Mitsubishi Montero Sport. 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 Mitsubishi Montero Sport 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 62.0 km/h (38.5 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 13, 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 (1) real-time camera and nine (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-only 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 (T₁₂) 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)	41.7	25.7
PEV (g)	53.9	42.3

Data Acquisition Explanations

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 36 milliseconds. This also affected the integrated velocity data channel.

The vehicle's left front door upper center line Y-axis accelerometer data channel, LFUYG1, exceeded its full-scale value at approximately 64 milliseconds and recorded no valid data after that. This also affected the integrated velocity data channel.

The vehicle's left rear door upper centerline Y-axis data channel, LRUYG1, recorded data spikes that exceeded their full-scale value at approximately 28 and 29 milliseconds. This also affected the integrated velocity data channel.

The vehicle's left middle A-post accelerometer, data channel, LMAYG1, exceeded its full-scale value at approximately 40 milliseconds and recorded no valid data after that. This also affected the integrated velocity data channel.

Section 3

Vehicle Test Data

Data Sheet 1
General Test Vehicle Parameter Data

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

Test Vehicle Information:

Year/Make/Model/Body: 2002 Mitsubishi Montero Sport MPV
Vehicle Body Color: Cambridge Red Pearl VIN: JA4MT21H62P010304
Vehicle NHTSA No.: M25603 Build Date: 08/01
Engine Data: 6 Cylinders; CID; 3 Liters; cc
Placement: - Longitudinal; or - Lateral; or - Horizontal
Transmission: 4 Speed; - Manual; X Automatic; - Overdrive
Final Drive: - RWD; - FWD; X Four-Wheel Drive
Odometer Reading: 69 km
Options: X A/C; X Power steering; X Power brakes; X Power windows

Data From Vehicle's Tire Placard:

Tire Pressure (at capacity)* 240 kPa Front; 240 kPa Rear
Recommended Tire Size: P235/75R15
Tires on Test Vehicle: P235/75R15 Manufacturer: Bridgestone

Vehicle Capacity Data:

Number of Occupants: 2 Front; 3 Rear; N/A 3rd seat; 5 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 Loading² = 576.5 kg (A)
No. of Occupants x 68 kg. = 340.0 kg (B)
Vehicle Cargo Capacity (A-B) = 236.5 kg

¹ Tire pressure used in test.

² Capacity information was not provided on label; vehicle capacity was derived by subtracting delivered weight with maximum fluids from GVWR=2430 kg.

Data Sheet 1 (continued)
General Test Vehicle Parameter Data

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

Restraint Information:

Driver:

3-point safety belt

Frontal airbag (did not deploy)

No side airbag

Rear Passenger:

3-point safety belt

No airbag

Test Vehicle Delivered Weight With Maximum Fluids:

Left Front	=	<u>533.0</u> kg	Left Rear	=	<u>425.0</u> kg
Right Front	=	<u>485.0</u> kg	Right Rear	=	<u>410.5</u> kg
Total Front	=	<u>1018.0</u> kg	Total Rear	=	<u>835.5</u> kg
Front % of Total Weight	=	<u>54.9</u> %	Rear % of Total Weight	=	<u>45.1</u> %
Total Weight	=	<u>1853.5</u> kg			

Calculation Of Vehicle's Target Test Weight:

Total Test Vehicle Delivered Weight with Max. Fluids	=	<u>1853.5</u> kg (A)
Maximum Cargo Carrying Capacity of Test Vehicle ¹	=	<u>136.0</u> kg (B)
Weight of Instrumented Side Impact Dummies (2 X 80kg)	=	<u>160.0</u> kg (C)
Test Vehicle Target Weight:	=	<u>2149.5</u> kg (A+B+C)

¹ Rated cargo and luggage weight is set at a maximum of 136 kg (300 lbs.) for target test weight determination.

Data Sheet 1 (continued)
General Test Vehicle Parameter Data

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

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

Left Front	=	<u>576.0</u>	kg	Left Rear	=	<u>569.0</u>	kg
Right Front	=	<u>485.0</u>	kg	Right Rear	=	<u>509.5</u>	kg
Total Front	=	<u>1061.0</u>	kg	Total Rear	=	<u>1078.5</u>	kg
Front % of Total Weight	=	<u>49.6</u>	%	Rear % of Total Weight	=	<u>50.4</u>	%
Total Weight	=	<u>2139.5</u>	kg				

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

Left Front	=	<u>564.8</u>	kg	Left Rear	=	<u>546.0</u>	kg
Right Front	=	<u>527.4</u>	kg	Right Rear	=	<u>499.2</u>	kg
Total Front	=	<u>1092.2</u>	kg	Total Rear	=	<u>1045.2</u>	kg
Front % of Total Weight	=	<u>51.1</u>	%	Rear % of Total Weight	=	<u>48.9</u>	%
Total Weight ¹	=	<u>2137.4</u>	kg				

Test Vehicle Attitude (all dimensions in millimeters):

As Delivered	Fully Loaded	Ready For Test
Right Front <u>901</u>	Right Front <u>890</u>	Right Front <u>869</u>
Left Front <u>895</u>	Left Front <u>873</u>	Left Front <u>865</u>
Right Rear <u>900</u>	Right Rear <u>842</u>	Right Rear <u>732</u>
Left Rear <u>899</u>	Left Rear <u>830</u>	Left Rear <u>835</u>

Test Vehicle Wheelbase: 2722 mm

C.G. = 1331 mm rearward of front wheel centerline

Total Vehicle Length:

Right Side = 4474 mm

Left Side = 4474 mm

Centerline = 4595 mm

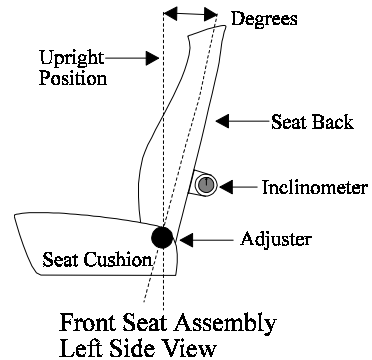
¹ Total test weight is slightly low because target weight was originally calculated with a lower dummy weight of 77.5 kg each.

Data Sheet 1 (continued)
General Test Vehicle Parameter Data

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

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 Cushion Placement: Set in closest notch just rear of center track or the 10th latching position counting the rearmost position as #1

Total Length of Fore/Aft Adjustment Travel: 190 mm

Total Number of Adjustment Positions or Detents: 20

Front Seat Back Adjustment Position: 22.9 degrees measured on the seat back frame pipe. The back was adjusted to the 6th locking position, counting the first locking position as #1.

Seat Back Torso Angle: N/A degrees

Second Position Seat Placement: Fixed

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

Seat Back Adjustment Position: 22 degrees measured on seat back frame pipe. The back was adjusted to the most upright locking position per manufacturer's instructions on test day.

Adjustable Steering Column Position: Mid: set by marking top and bottom of column's arc and locating the center.

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.

Data Sheet 1 (continued)
General Test Vehicle Parameter Data

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

Amount of Stoddard Solvent In Fuel Tank:

74.0 liters (fuel tank usable capacity)

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

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

Wheelbase = 2722 millimeters

Intended impact point is 421 millimeters rearward of front axle centerline
(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 431 millimeters rearward of front axle centerline

Data Sheet 2
Test Vehicle Summary of Results

Vehicle Identification:

Vehicle Year/Make/Model: 2002/Mitsubishi /Montero Sport/MPV

Body Style: VIN: JA4MT21H62P010304

NHTSA No.: M25603

Test Date: 12/13/01

Vehicle Overall Length = 4595 mm

Overall Width = 1400 mm

Vehicle Test Weight (Pre-Test):

Left Front = 564.8 kg Left Rear = 546.0 kg

Right Front = 527.4 kg Right Rear = 499.2 kg

Total Front = 1092.2 kg Total Rear = 1045.2 kg

Total Weight = 2137.4 kg

Wheelbase = 2722 mm

Longitudinal C.G. From Center Of Front Axle = 1331 mm

Impact Angle With Respect To Impactor = 90 degrees

Impact Point:

Actual Impact Point is 10 mm Right of nominal impact ref. line (Lateral)

Actual Impact Point is 3 mm Up from nominal impact point (Vertical)

Maximum Exterior Static Crush:

1. Level 1 (470 mm above ground) = 350 mm

2. Level 2 (804 mm above ground) = 290 mm

3. Level 3 (842 mm above ground) = 271 mm

4. Level 4 (1111 mm above ground) = 173 mm

5. Level 5 (1650 mm above ground) = 40 mm

Maximum Post-Test Intrusion = 350 mm

Occupants:

Front Passenger

Rear Passenger

Dummy Identification 272

269

Restraints Used/Deployed Seat belt

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 Mitsubishi Montero Sport

NHTSA No.: M25603

MDB Face Manufacturer And Serial Number:

Plascore, Block #033A0801, Sample ID#IN323473

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) = 4014 mm

Wheelbase of Framework Carriage = 2591 mm

Track of Framework Carriage (Front & Rear) = 1881 mm

C.G. Location Rearward of Front Axle = 1126 mm

MDB Weight:

Left Front = 425.2 kg Left Rear = 254.6 kg

Right Front = 345.8 kg Right Rear = 338.4 kg

Total Front = 771.0 kg Total Rear = 593.0 kg

Total MDB Weight = 1364.0 kg

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

Impact Speed = 62.0 km/h

Maximum Static Crush of Honeycomb Impact Face:

1. Row A at Center of Bumper Level = 132.0 millimeters

2. Row B at Top of Bumper Level = 108.6 millimeters

3. Row C at Mid Level = 132.9 millimeters

4. Row D at Top of Stack Level = 151.6 millimeters

Instrumentation:

Number of MDB Data Channels = 7

Data Sheet 4
Post-Test Observations

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

Visible Dummy Contact Points:

	<u>Left Front SID</u>	<u>Left Rear SID</u>
Head:	<u>B-pillar, head restraint</u>	<u>C-pillar, head restraint</u>
Upper Torso:	<u>Door panel</u>	<u>C-pillar</u>
Lower Torso:	<u>Door panel</u>	<u>Door panel</u>
Left Knee:	<u>Door panel</u>	<u>Door panel</u>
Right Knee:	<u>None</u>	<u>None</u>

Door Opening:

	<u>Left Side</u>	<u>Right Side</u>
Front:	<u>Jammed shut</u>	<u>Closed and operational</u>
Rear:	<u>Jammed shut</u>	<u>Closed and operational</u>

MDB Distance From Target Impact Point:

Vertical: 3 mm up from target

Horizontal: 10 mm right from target

Arm Rest Locations:

Front: Left: on door; right: fixed console

Rear: None

Seat Movement:

Front: None

Rear: None

Glazing Damage:

Windshield: None

Window: None

Pillar Separation:

No

Sill Separation:

No

Other Notable Impact Effects:

The driver and passenger frontal airbags did not deploy.

Right rear tire flattened.

Section 4

Occupant and Vehicle Information

Data Sheet 5

SID Instrumentation Data

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

TEST NUMBER: 011213

DRIVER DUMMY SERIAL NUMBER: 272

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

HEAD ACCELERATION

LONGITUDINAL	12.8 g	@ 61.1 ms	26.6 g	@ 75.1 ms
LATERAL	90.7 g	@ 62.0 ms	5.8 g	@ 37.8 ms
VERTICAL	25.5 g	@ 72.2 ms	11.3 g	@ 34.7 ms
RESULTANT	94.1 g	@ 62.0 ms		
HIC	180 from 60.0 to 63.9 ms			

LEFT UPPER RIB ACCELERATION

LATERAL (P)	34.2 g	@ 70.0 ms	11.2 g	@ 75.0 ms
LATERAL (R)	34.3 g	@ 70.0 ms	11.5 g	@ 75.0 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	34.3 g	@ 35.6 ms	18.2 g	@ 73.8 ms
LATERAL (R)	35.6 g	@ 35.6 ms	18.6 g	@ 74.4 ms
TTI d (P)	41.7			
TTI d (R)	42.7			

LOWER SPINE ACCELERATION

LATERAL (P)	49.0 g	@ 35.6 ms	12.5 g	@ 79.4 ms
LATERAL (R)	49.8 g	@ 35.6 ms	12.2 g	@ 79.4 ms

PELVIS ACCELERATION

LATERAL (P)	53.9 g	@ 34.4 ms	15.3 g	@ 78.1 ms
LATERAL (R)	52.6 g	@ 33.7 ms	15.6 g	@ 78.1 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 Mitsubishi Montero Sport

NHTSA No.: M25603

TEST NUMBER: 011213

PASSENGER DUMMY SERIAL NUMBER: 269

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

HEAD ACCELERATION

LONGITUDINAL	15.8 g	@ 62.7 ms	18.2 g	@ 88.2 ms
LATERAL	299.8 g	@ 61.2 ms	10.3 g	@ 48.0 ms
VERTICAL	40.5 g	@ 61.1 ms	32.4 g	@ 69.5 ms
RESULTANT	302.5 g	@ 61.2 ms		
HIC	1666 from 60.6 to 62.6 ms			

LEFT UPPER RIB ACCELERATION

LATERAL (P)	24.5 g	@ 76.3 ms	0.2 g	@ 4.4 ms
LATERAL (R)	22.2 g	@ 76.3 ms	2.7 g	@ 164.4 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	24.1 g	@ 48.1 ms	2.7 g	@ 195.6 ms
LATERAL (R)	24.0 g	@ 48.1 ms	2.3 g	@ 195.0 ms
TTI d (P)	25.7			
TTI d (R)	25.8			

LOWER SPINE ACCELERATION

LATERAL (P)	26.9 g	@ 44.4 ms	10.9 g	@ 72.5 ms
LATERAL (R)	27.6 g	@ 44.4 ms	11.0 g	@ 72.5 ms

PELVIS ACCELERATION

LATERAL (P)	42.3 g	@ 33.7 ms	15.9 g	@ 80.0 ms
LATERAL (R)	41.6 g	@ 33.7 ms	15.7 g	@ 80.0 ms

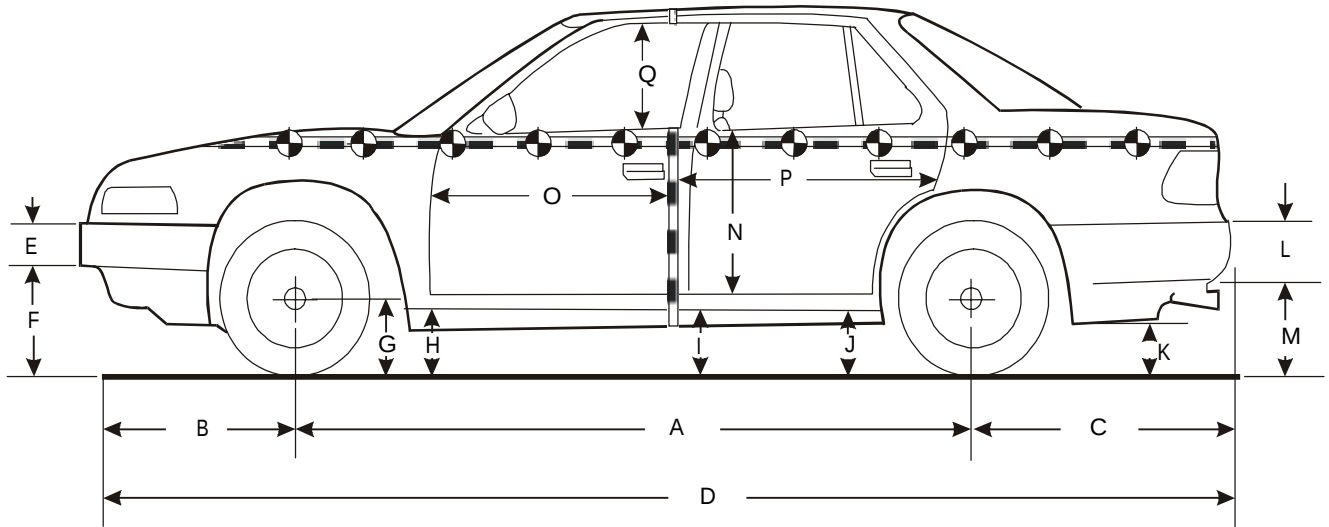
Rib, spine, and pelvis data are processed with the Finite Impulse Response filter routine for injury criteria evaluation.

Data Sheet 6

Vehicle Pre-Test And Post-Test Measurements

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603



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	2722	2722	2705	17
B	819	819	819	0
C	1054	1054	1054	0
D	4595	4595	4595	0
E	294	294	294	0
F	472	472	505	-33
G	335	335	350	-15
H	430	430	410	20
I	471	N/A	448	23
J1	488	N/A	390	98
J2	418	N/A	390	28
K ¹	490	N/A	400	90
L	131	131	131	0
M ¹	518	N/A	395	123
N	670	670	680	-10
O	747	747	750	-3
P	1222	1222	1185	37
Q	418	418	418	0
R	4474	4474	4490	-16
S	4474	4474	4420	54
T	1400	1400	1289	111

D = Length at centerline
T = Width at B-pillar

E&L = Bumper Thickness
J1 = To Pinch Weld

R = Right Side Length
J2 = To Sill

S = Left Side Length

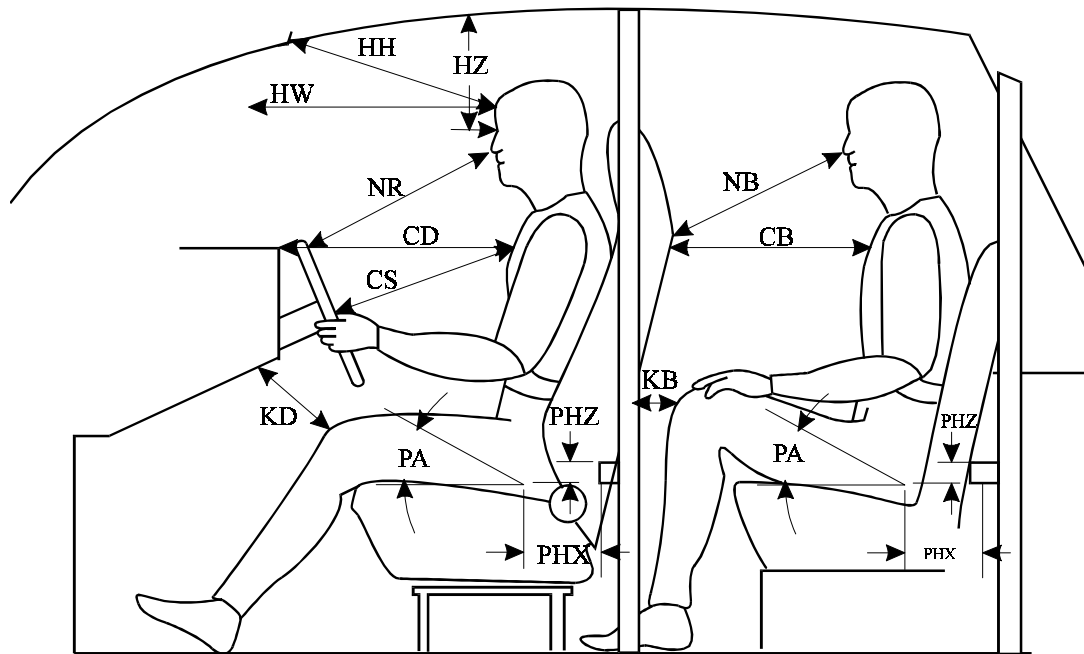
¹ Right rear tire flattened during test.

Data Sheet 7

SID Longitudinal Clearance Dimensions

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603



Left Side View

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

Measurement	Driver SID # 272	Left Rear Passenger SID # 269
HH	502	N/A
HW	615	N/A
HZ	182	169
NR/NB	490	631
CD/CB	596	527
CS	340	N/A
KDL(KDA°)/KBL(KBA°)	107/77.2°	148/60.0°
KDR(KDA°)/KBR(KBA°)	130/74.6°	157/64.5°
PA°	24.0°	23.7°
PHX	200	175
PHZ	82	121

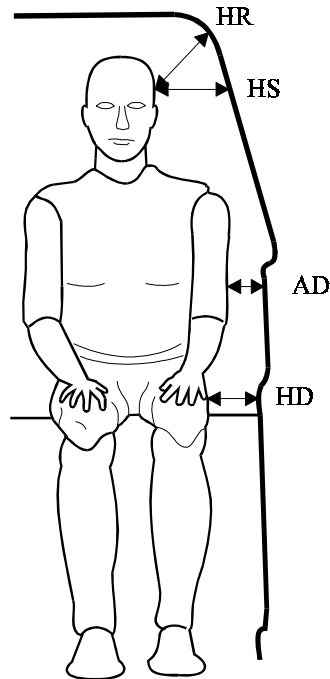
Note: 2-door vehicle shown. Rear dummy PHX and PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

Data Sheet 8

SID Lateral Clearance Dimensions

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603



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

Measurement	Driver SID # 272	Left Rear Passenger SID # 269
HR	235	225
HS	305	235
AD*	Lower: 114 Upper: 148	Lower: 136 Upper: 90
HD	172	134

* 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.

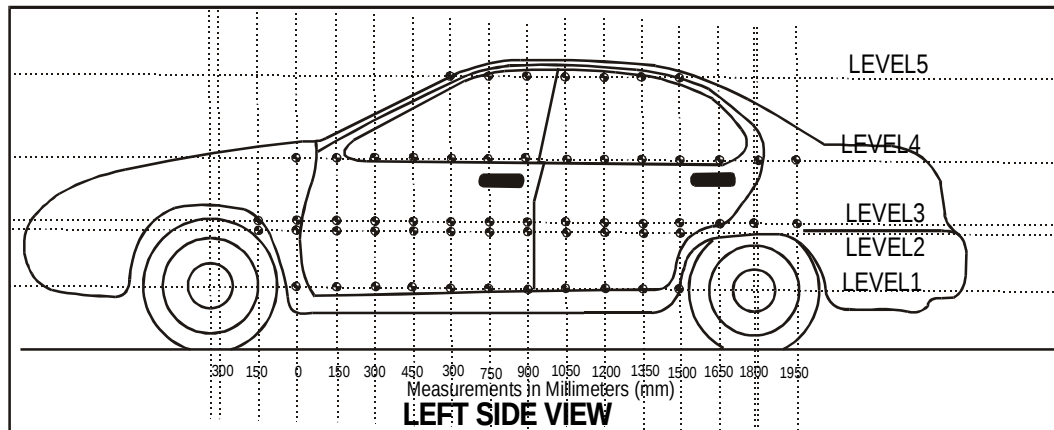
Upper measurement is taken laterally at center of the upper rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

Data Sheet 9

Vehicle Side Measurements

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603



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	=	<u>1650</u>	mm
Level 4 @ Window Sill	=	<u>1111</u>	mm
Level 3 @ Mid Door	=	<u>842</u>	mm
Level 2 @ Occupant H-Point	=	<u>804</u>	mm
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>470</u>	mm

Data Sheet 10

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

			(mm) From Impact Point													
Location	Height		-1200	-1050	-900	-750	-600	-450	-300	-150	0	150	300	450	600	750
Level 1 Side Sill		Pre	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	995	995	995	995	994
	470	Post	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1245	1260	1282	1295	1305
		Crush	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	250	265	287	300	311
Level 2 H-Point		Pre	N/A	N/A	N/A	951	N/A	N/A	N/A	N/A	947	953	952	950	949	948
	804	Post	N/A	N/A	N/A	980	N/A	N/A	N/A	N/A	1080	1130	1171	1185	1208	1215
		Crush	N/A	N/A	N/A	29	N/A	N/A	N/A	N/A	133	177	219	235	259	267
Level 3 Mid-Door		Pre	N/A	N/A	N/A	964	940	N/A	N/A	940	947	952	951	950	949	947
	842	Post	N/A	N/A	N/A	991	985	N/A	N/A	1045	1067	1130	1143	1158	1180	1195
		Crush	N/A	N/A	N/A	27	45	N/A	N/A	105	120	178	192	208	231	248
Level 4 Window Sill		Pre	N/A	N/A	1055	1042	1020	1010	1005	1000	995	992	985	985	981	982
	1111	Post	N/A	N/A	1065	1050	1045	1038	1035	1042	1042	1030	1040	1056	1075	1090
		Crush	N/A	N/A	10	8	25	28	30	42	47	38	55	71	94	108
Level 5 Window Top		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	1217	1205
	1650	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	1255	1242
		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	38	37

Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

Location	Height		(mm) From Impact Point												
			900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700
Level 1 Side Sill	470	Pre	992	994	992	995	1000	1000	1002	N/A	N/A	N/A	N/A	N/A	N/A
		Post	1320	1330	1335	1345	1345	1310	1290	N/A	N/A	N/A	N/A	N/A	N/A
		Crush	328	336	343	350	345	310	288	N/A	N/A	N/A	N/A	N/A	N/A
Level 2 H-Point	804	Pre	947	948	949	950	955	958	960	958	N/A	N/A	N/A	N/A	967
		Post	1230	1210	1220	1240	1225	1215	1190	1115	N/A	N/A	N/A	N/A	985
		Crush	283	262	271	290	270	257	230	157	N/A	N/A	N/A	N/A	18
Level 3 Mid-Door	842	Pre	946	947	949	950	955	956	960	959	N/A	N/A	N/A	N/A	967
		Post	1210	1205	1220	1213	1215	1195	1185	1118	N/A	N/A	N/A	N/A	985
		Crush	264	258	271	263	260	239	225	159	N/A	N/A	N/A	N/A	18
Level 4 Window Sill	1111	Pre	979	980	980	981	982	982	984	986	985	990	992	995	1000
		Post	1113	1140	1153	1135	1110	1085	1070	1058	1066	1045	1035	1020	1015
		Crush	134	160	173	154	128	103	86	72	81	55	43	25	15
Level 5 Window Top	1650	Pre	1205	1205	1205	1206	1201	1203	1195	1203	1205	1211	1215	1225	1230
		Post	1245	1240	1235	1240	1220	1225	1220	1225	1225	1225	1230	1230	1235
		Crush	40	35	30	34	19	22	25	22	20	14	15	5	5

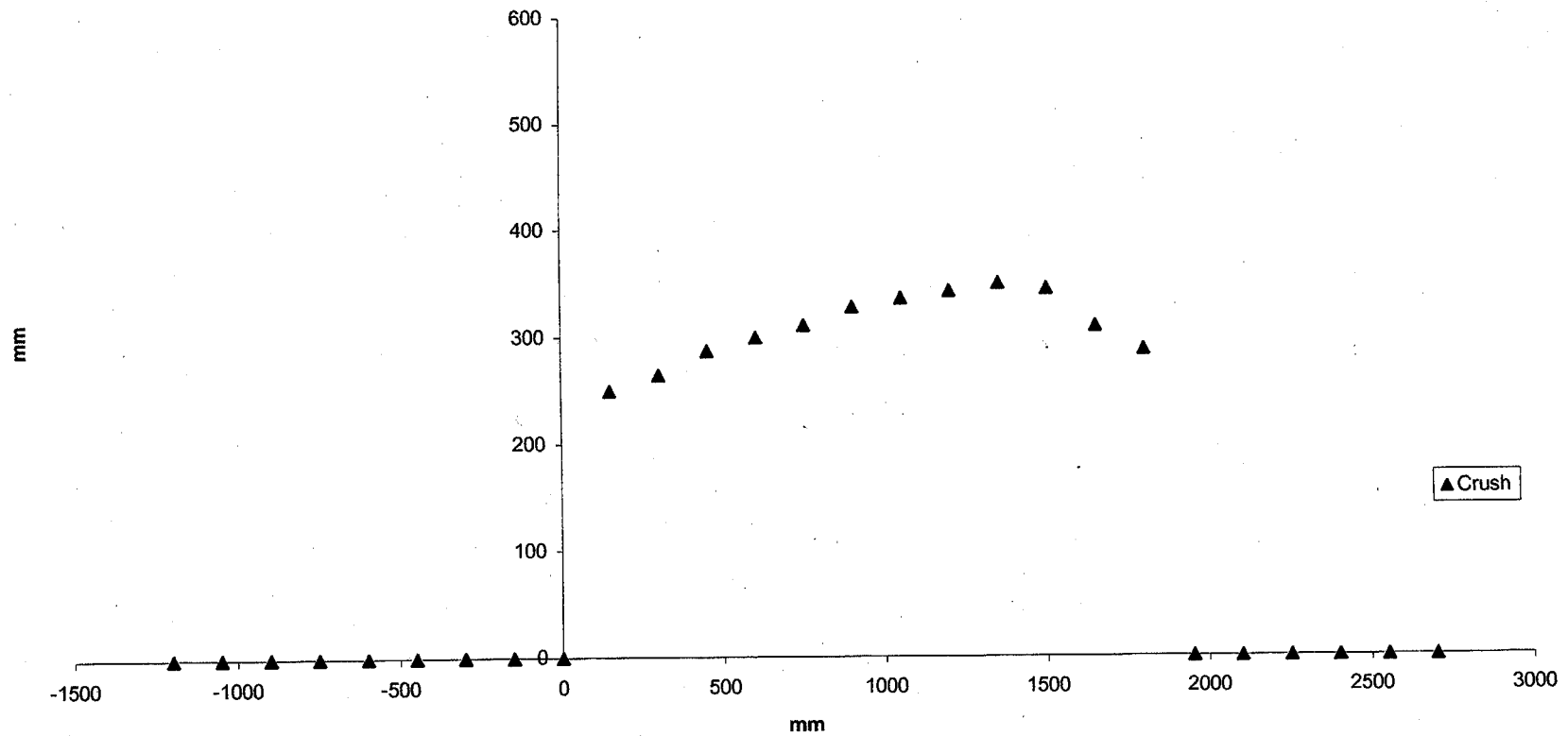
Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

Side Profile Level 1 470 mm Above Ground



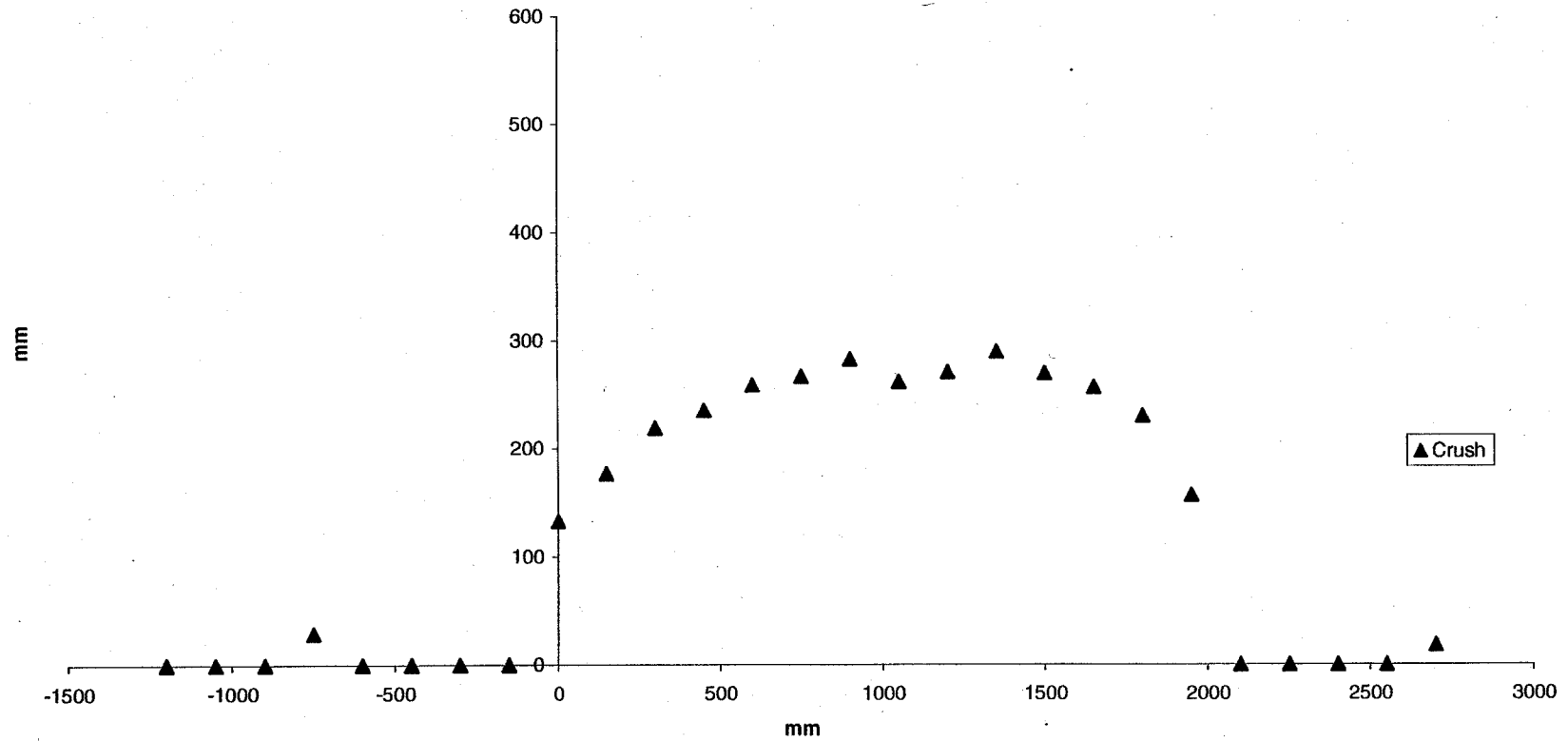
Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

Side Profile Level 2 804 mm Above Ground



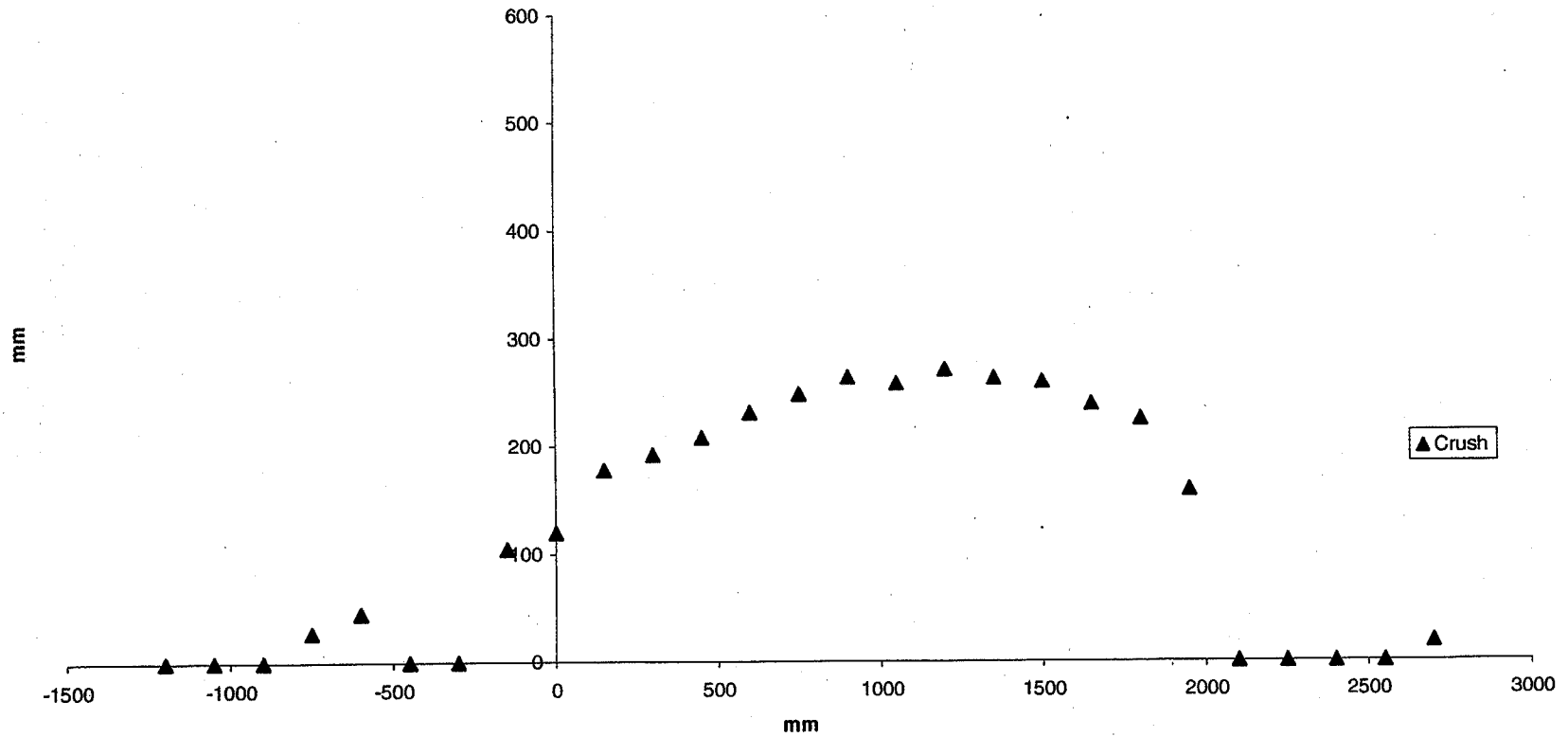
Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

Side Profile Level 3 842 mm Above Ground



4-12

011213

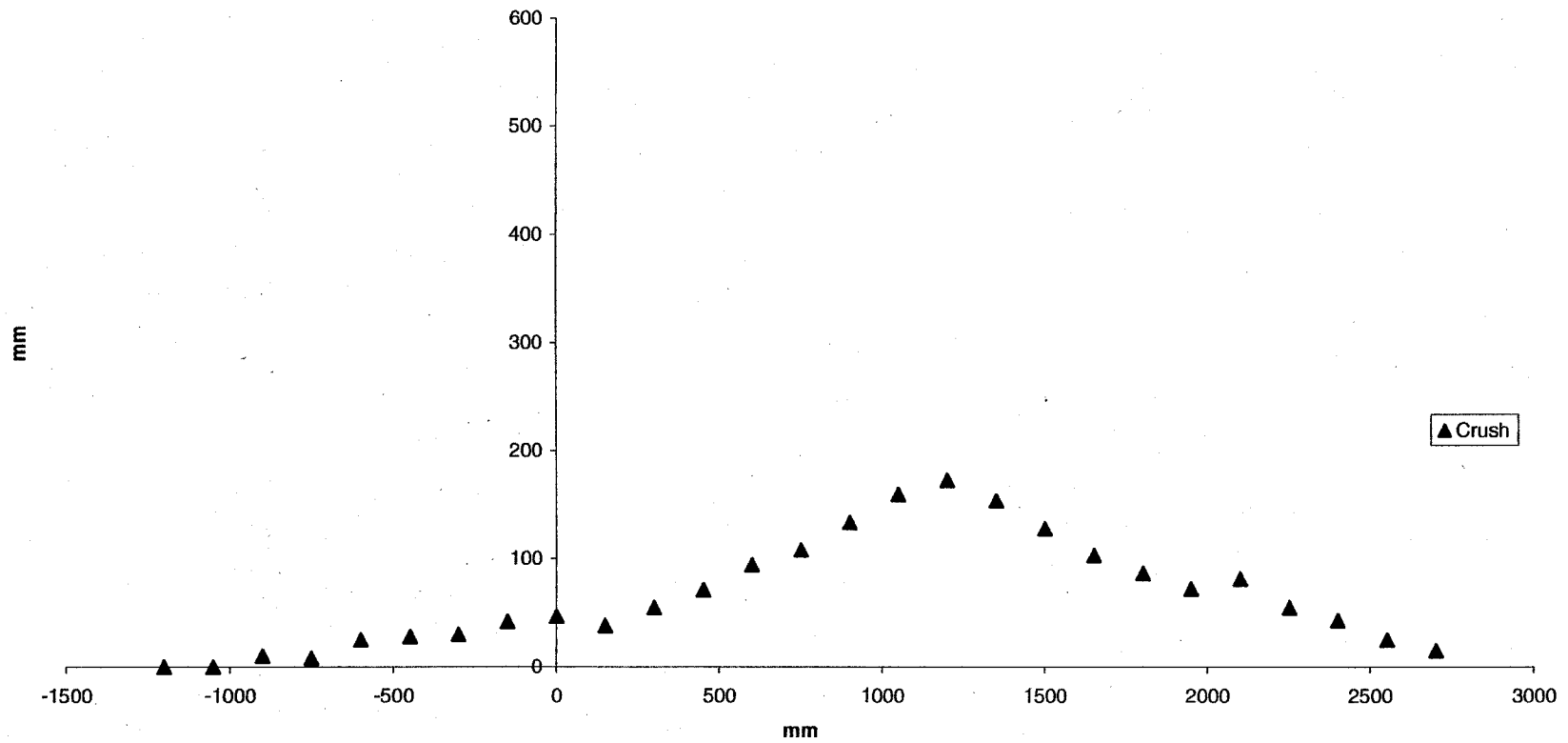
Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

Side Profile Level 4 1111 mm Above Ground



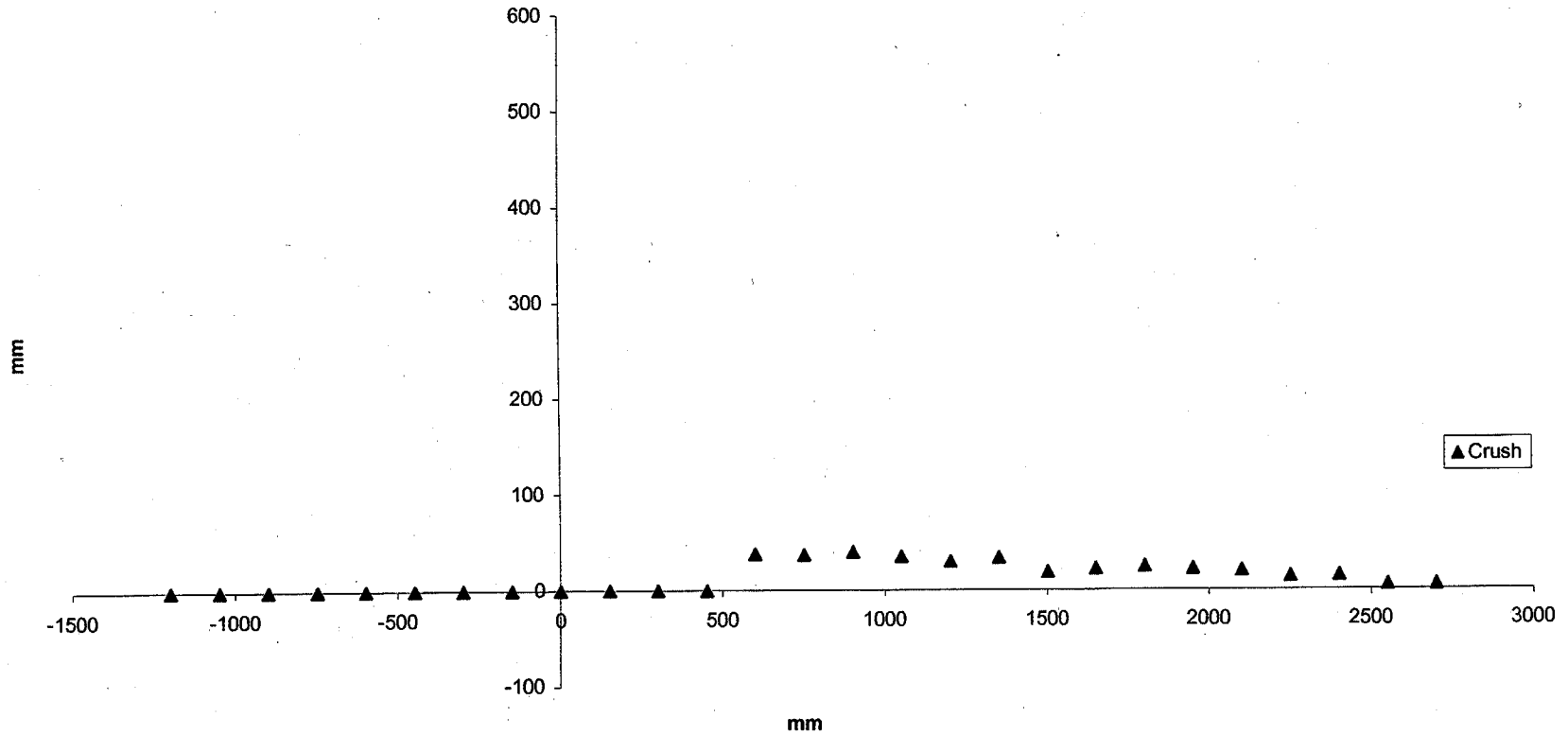
Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

Side Profile Level 5 1650 mm Above Ground



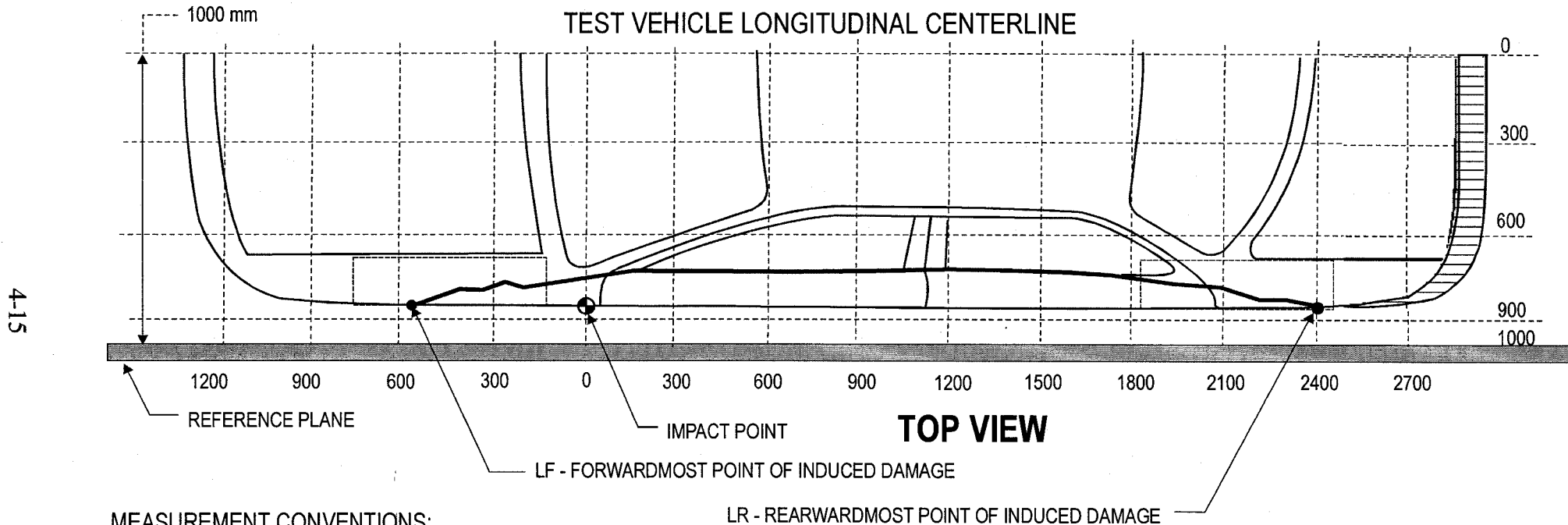
Data Sheet 11

Vehicle Damage Profile Distances

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

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 – Level 1	Post-Test (mm)	Pre-Test (mm)	Static Crush (mm)
6 LF= -300 mm (Level 4)	1035	1005	30
5 300 mm (Level 1)	1260	995	265
6 900 mm (Level 1)	1320	992	328
3 1350 mm (Level 1)	1345	995	350
2 1950 mm (Level 3)	1118	959	159
1 LR= 2550 mm (Level 4)	1020	995	25

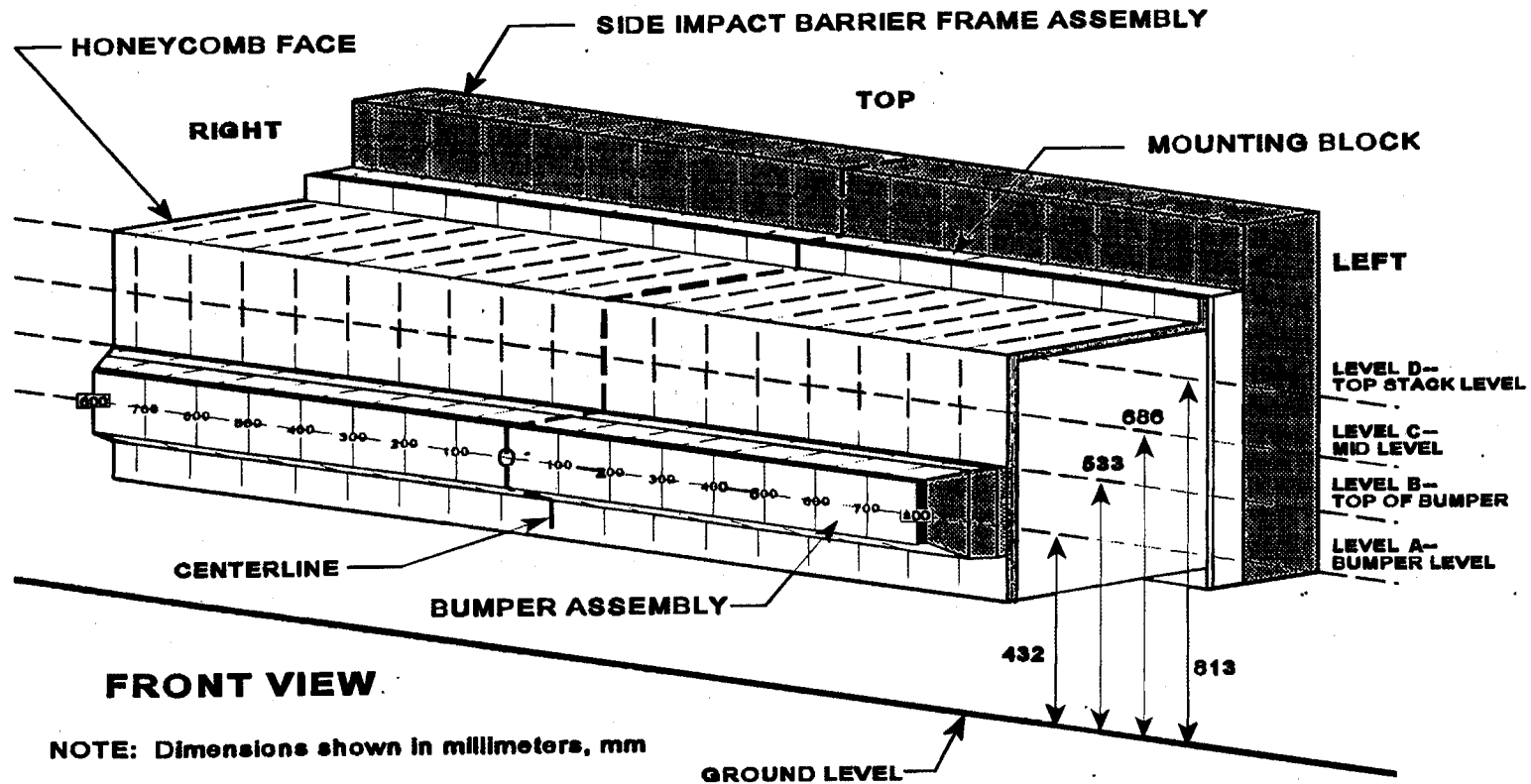
Data Sheet 12

Exterior Static Crush For Impactor Face

(Grid as looking at MDB from front)

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603



Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

		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	819	-151.6	-114.4	-92.7	-79.7	-65.3	-64.8	-81.2	-77.1	-52.6	-40.3	-39.6	-45.8	-52.7	-67.0	-76.2	-88.8	-132.0	
Mid Level Level C	704	-132.9	-69.3	-45.2	-28.3	-18.9	-20.0	-32.8	-22.1	-13.2	-11.3	-12.3	-14.1	-15.6	-19.1	-28.9	-53.0	-103.7	
Top Bumper Level - Level B	561	-108.6	-96.4	-81.6	-72.6	-70.8	-60.5	-52.0	-52.3	-52.7	-54.1	-58.2	-68.2	-74.3	-81.0	-88.7	-88.5	-82.8	
Mid Bumper Level - Level A	432	-132.0	-125.4	-104.3	-80.3	-73.2	-75.3	-76.3	-74.2	-73.3	-75.0	-77.1	-79.5	-82.8	-88.3	-94.6	-99.8	-102.8	

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

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

Deformable Barrier Face Profile

Pre-Test

Index	Xmm	Ymm	Zmm
1	-406.6	797.9	-73.6
2	-406.5	697.7	-74.2
3	-406.1	597.8	-74.3
4	-406.1	497.5	-75.0
5	-406.2	397.3	-76.0
6	-406.2	297.3	-75.9
7	-406.5	197.5	-75.6
8	-407.0	97.1	-77.0
9	-406.2	-4.2	-75.8
10	-406.9	-106.0	-75.5
11	-406.1	-205.7	-76.3
12	-406.1	-306.6	-76.7
13	-405.7	-406.3	-76.9
14	-405.7	-506.9	-77.0
15	-405.6	-607.1	-77.3
16	-405.3	-706.8	-77.5
17	-405.4	-807.2	-77.7
18	-406.8	796.7	-202.8
19	-407.5	696.5	-202.4
20	-405.8	595.9	-203.4
21	-406.6	495.6	-203.5
22	-406.6	396.3	-204.0

Post-Test

Index	Xmm	Ymm	Zmm
1	-255.1	736.8	-114.1
2	-292.1	646.9	-111.8
3	-313.4	549.4	-114.8
4	-326.4	453.5	-125.6
5	-340.9	361.0	-133.6
6	-341.5	261.5	-131.5
7	-325.3	162.6	-136.7
8	-330.0	63.1	-137.7
9	-353.7	-35.0	-129.5
10	-366.6	-134.0	-125.8
11	-366.6	-234.1	-125.8
12	-360.3	-333.8	-127.6
13	-353.0	-432.6	-129.4
14	-338.8	-530.3	-136.2
15	-329.5	-629.7	-131.4
16	-316.5	-728.3	-128.4
17	-273.4	-817.3	-136.5
18	-273.9	730.0	-240.9
19	-338.2	659.7	-231.3
20	-360.6	562.3	-233.8
21	-378.3	464.2	-236.9
22	-387.7	365.3	-241.3

Difference

Index	Xmm	Ymm	Zmm
1	-151.6	61.1	40.5
2	-114.4	50.9	37.7
3	-92.7	48.4	40.5
4	-79.7	44.0	50.6
5	-65.3	36.3	57.6
6	-64.8	35.8	55.6
7	-81.2	34.9	61.1
8	-77.1	34.0	60.8
9	-52.6	30.9	53.8
10	-40.3	28.1	50.3
11	-39.6	28.4	49.5
12	-45.8	27.3	51.0
13	-52.7	26.3	52.5
14	-67.0	23.4	59.2
15	-76.2	22.6	54.2
16	-88.8	21.5	50.9
17	-132.0	10.1	58.9
18	-132.9	66.7	38.2
19	-69.3	36.8	29.0
20	-45.2	33.6	30.5
21	-28.3	31.4	33.5
22	-18.9	31.0	37.4

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

Deformable Barrier Face Profile Cont'd.

Pre-Test

Index	Xmm	Ymm	Zmm
23	-406.3	295.9	-204.6
24	-406.6	195.4	-205.0
25	-406.4	95.5	-204.9
26	-406.4	-4.8	-205.2
27	-405.4	-104.4	-205.4
28	-406.2	-205.4	-205.2
29	-406.3	-305.9	-205.8
30	-406.6	-405.6	-205.4
31	-405.3	-504.9	-205.7
32	-405.4	-604.9	-206.4
33	-405.7	-705.8	-207.5
34	-406.2	-805.6	-207.6
35	-408.1	796.8	-342.1
36	-407.9	695.7	-342.0
37	-407.7	595.1	-342.9
38	-407.2	494.6	-343.8
39	-407.1	395.3	-340.4
40	-407.5	295.4	-342.2
41	-407.5	194.9	-343.6
42	-407.4	94.7	-344.7
43	-407.8	-5.7	-348.1
44	-406.9	-105.1	-346.7

Post-Test

Index	Xmm	Ymm	Zmm
23	-386.4	264.6	-247.1
24	-373.8	164.4	-254.5
25	-384.3	65.6	-253.6
26	-393.2	-34.0	-251.8
27	-394.1	-134.8	-251.6
28	-393.9	-234.9	-250.2
29	-392.2	-335.5	-249.9
30	-391.0	-436.7	-250.0
31	-386.2	-535.0	-248.1
32	-376.5	-635.1	-248.2
33	-352.7	-732.6	-251.8
34	-302.5	-817.0	-261.4
35	-299.5	764.1	-351.4
36	-311.5	663.1	-350.7
37	-326.1	566.9	-355.6
38	-334.6	450.9	-353.4
39	-336.3	357.5	-358.8
40	-347.0	247.9	-355.8
41	-355.5	175.5	-353.0
42	-355.1	78.1	-355.5
43	-355.2	-26.3	-354.6
44	-352.8	-131.0	-353.5

Difference

Index	Xmm	Ymm	Zmm
23	-20.0	31.3	42.6
24	-32.8	31.0	49.5
25	-22.1	29.9	48.7
26	-13.2	29.3	46.6
27	-11.3	30.5	46.2
28	-12.3	29.6	45.1
29	-14.1	29.6	44.1
30	-15.6	31.1	44.6
31	-19.1	30.1	42.4
32	-28.9	30.3	41.8
33	-53.0	26.9	44.3
34	-103.7	11.4	53.8
35	-108.6	32.8	9.3
36	-96.4	32.6	8.7
37	-81.6	28.2	12.7
38	-72.6	43.8	9.6
39	-70.8	37.8	18.4
40	-60.5	47.6	13.6
41	-52.0	19.4	9.4
42	-52.3	16.6	10.8
43	-52.7	20.7	6.5
44	-54.1	25.9	6.8

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

Deformable Barrier Face Profile Cont'd.

Pre-Test

Index	Xmm	Ymm	Zmm
45	-406.6	-205.6	-347.6
46	-406.9	-306.1	-348.1
47	-407.0	-405.4	-349.1
48	-406.6	-506.5	-349.1
49	-406.5	-605.7	-350.1
50	-406.3	-706.5	-349.2
51	-406.4	-806.7	-348.8
52	-500.6	791.8	-463.0
53	-511.2	693.3	-462.7
54	-511.4	593.2	-462.1
55	-511.1	493.2	-461.2
56	-511.0	392.6	-462.1
57	-511.2	293.4	-462.9
58	-510.6	194.0	-462.3
59	-510.8	93.0	-462.2
60	-510.2	-7.5	-462.5
61	-510.6	-106.1	-462.9
62	-510.6	-206.5	-463.4
63	-510.3	-307.0	-463.5
64	-509.3	-405.7	-462.2
65	-509.1	-505.8	-462.7
66	-509.2	-606.3	-463.0
67	-508.65	-706.7	-463.75
68	-498.35	-803.7	-464.6

Post-Test

Index	Xmm	Ymm	Zmm
45	-348.5	-234.6	-351.1
46	-338.7	-335.0	-350.6
47	-332.7	-423.5	-348.8
48	-325.6	-528.8	-347.8
49	-317.8	-632.0	-346.7
50	-317.8	-739.8	-354.0
51	-323.6	-822.9	-360.2
52	-368.6	753.0	-466.0
53	-385.8	656.2	-462.8
54	-407.1	559.9	-460.3
55	-430.8	462.6	-458.5
56	-437.8	362.3	-458.7
57	-435.9	263.6	-456.2
58	-434.3	163.5	-455.3
59	-436.6	63.1	-453.8
60	-437.0	-35.6	-453.5
61	-435.6	-137.0	-451.8
62	-433.5	-236.7	-450.1
63	-430.9	-337.4	-449.5
64	-426.5	-437.4	-447.9
65	-420.8	-537.2	-447.8
66	-414.7	-636.7	-447.2
67	-408.9	-737.05	-448
68	-395.55	-834.05	-448.95

Difference

Index	Xmm	Ymm	Zmm
45	-58.2	29.0	3.6
46	-68.2	29.0	2.4
47	-74.3	18.1	-0.3
48	-81.0	22.3	-1.3
49	-88.7	26.4	-3.4
50	-88.5	33.3	4.8
51	-82.8	16.3	11.4
52	-132.0	38.8	3.1
53	-125.4	37.1	0.1
54	-104.3	33.3	-1.8
55	-80.3	30.6	-2.7
56	-73.2	30.3	-3.4
57	-75.3	29.8	-6.7
58	-76.3	30.5	-7.0
59	-74.2	29.9	-8.4
60	-73.3	28.1	-9.1
61	-75.0	30.9	-11.1
62	-77.1	30.2	-13.4
63	-79.5	30.4	-14.0
64	-82.8	31.7	-14.3
65	-88.3	31.4	-15.0
66	-94.6	30.4	-15.9
67	-99.8	30.3	-15.8
68	-102.8	30.3	-15.7

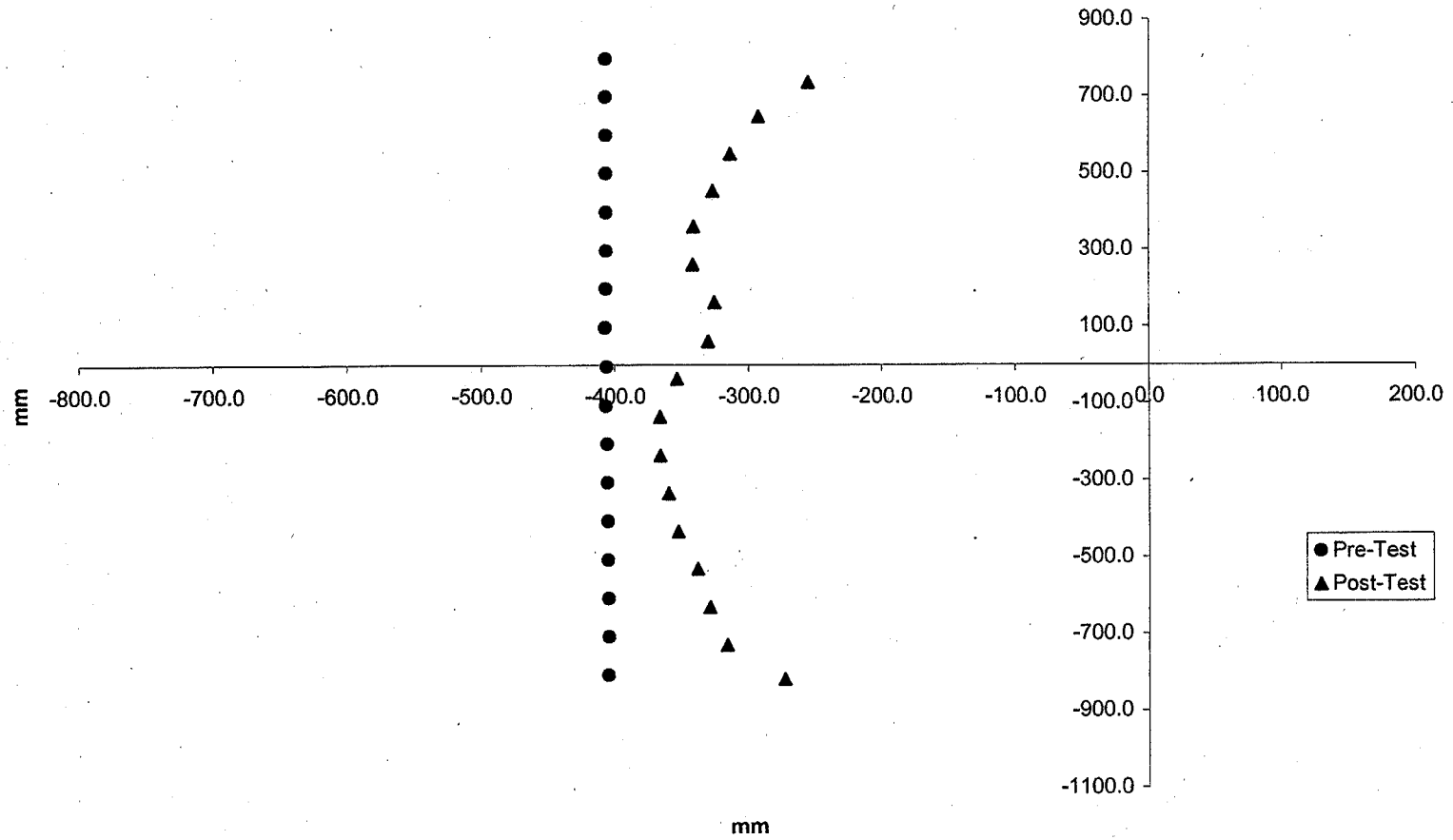
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

Row D - Deformable Barrier Face Profile 1-17



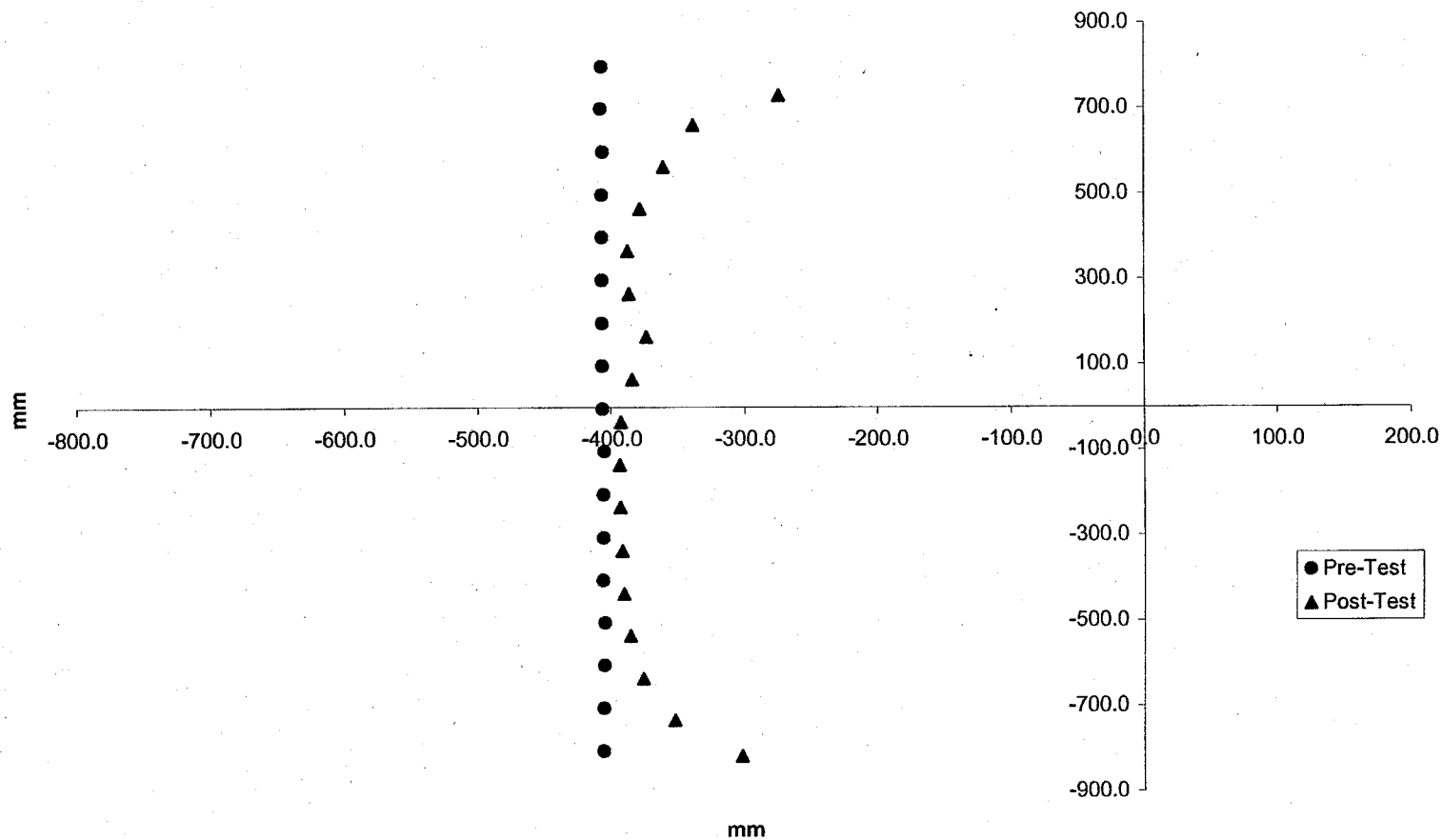
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

Row C - Deformable Barrier Face Profile 18-34



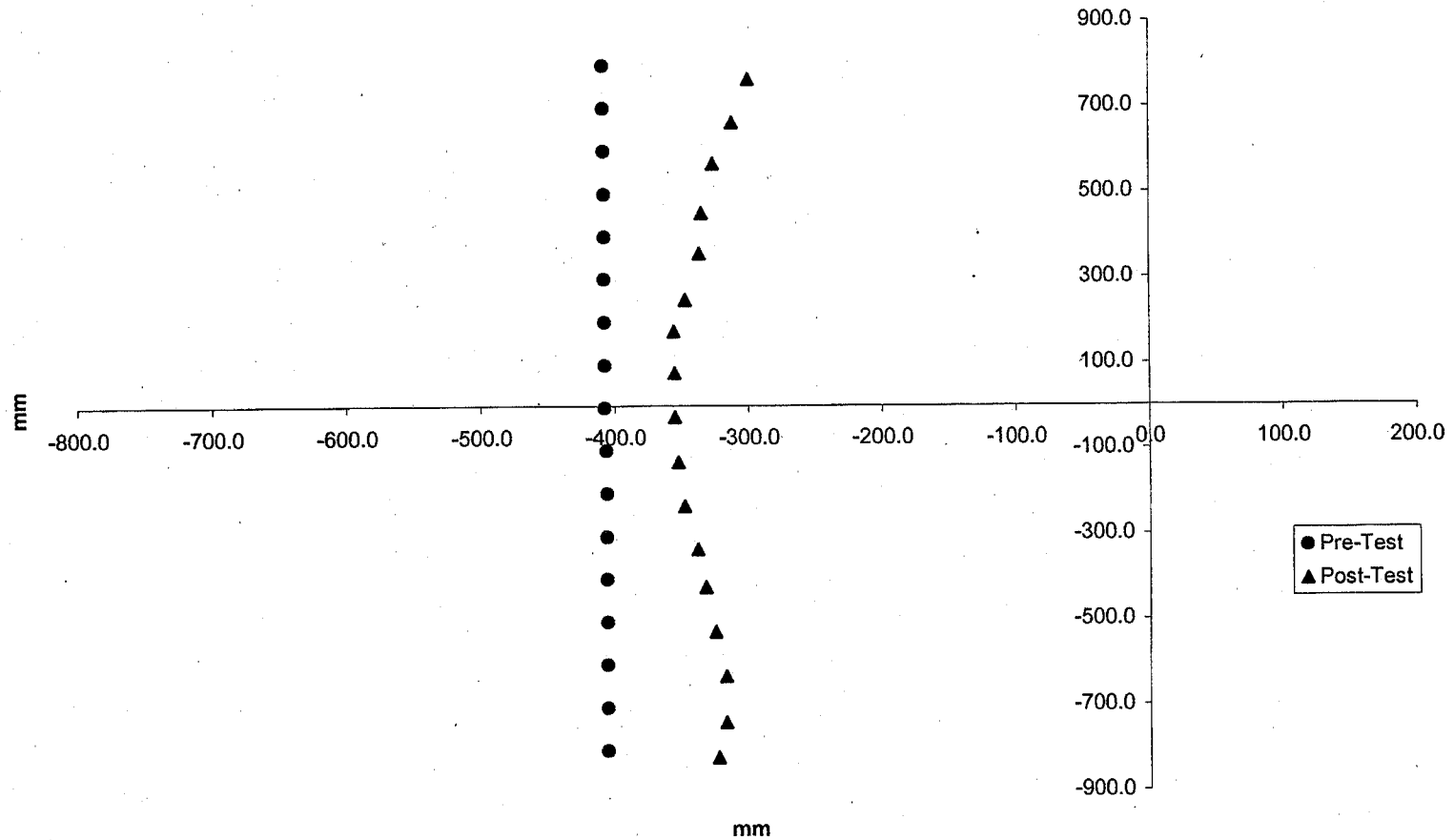
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

Row B - Deformable Barrier Face Profile 35-51



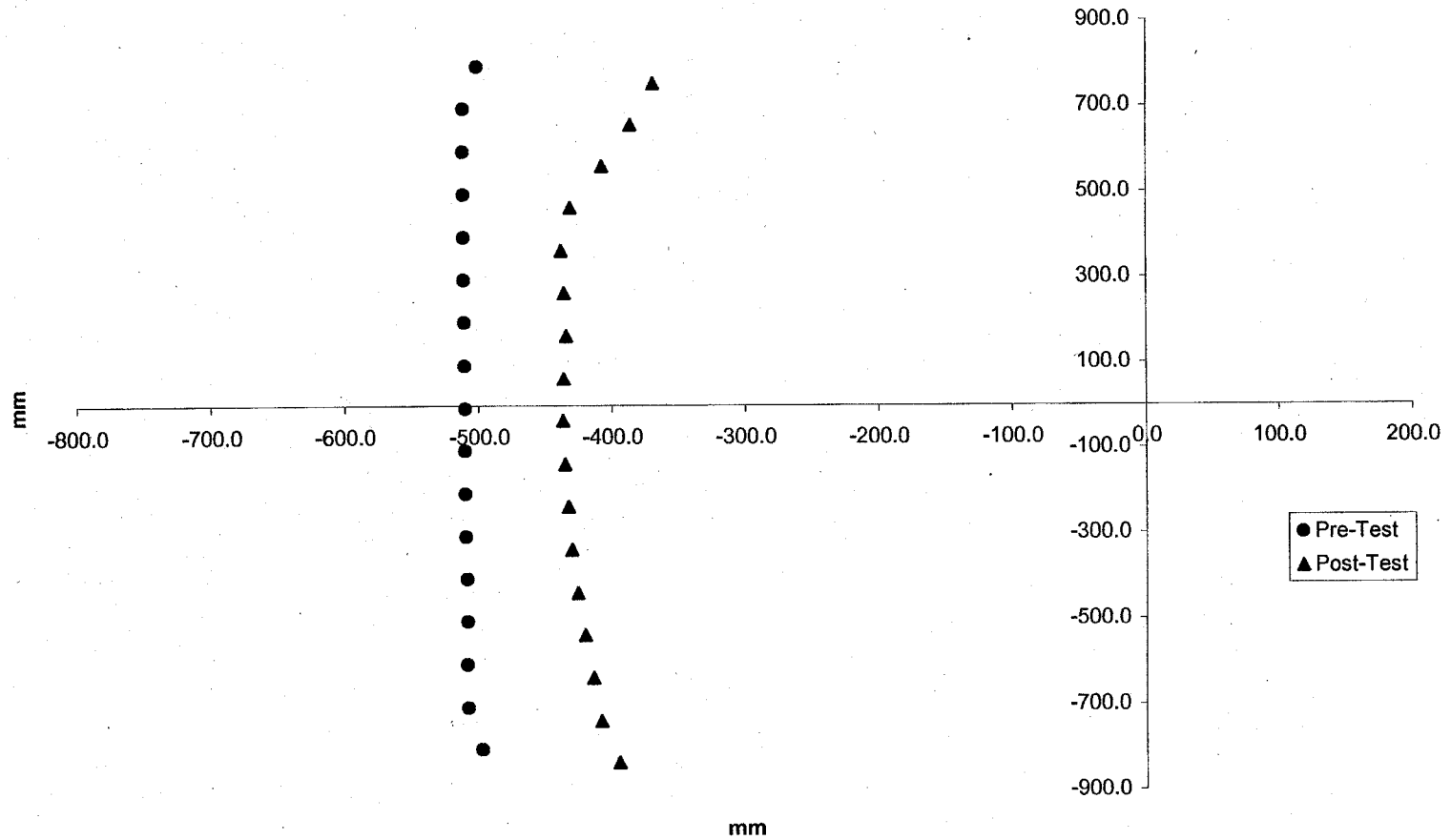
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

Row A - Deformable Barrier Face Profile 52-68

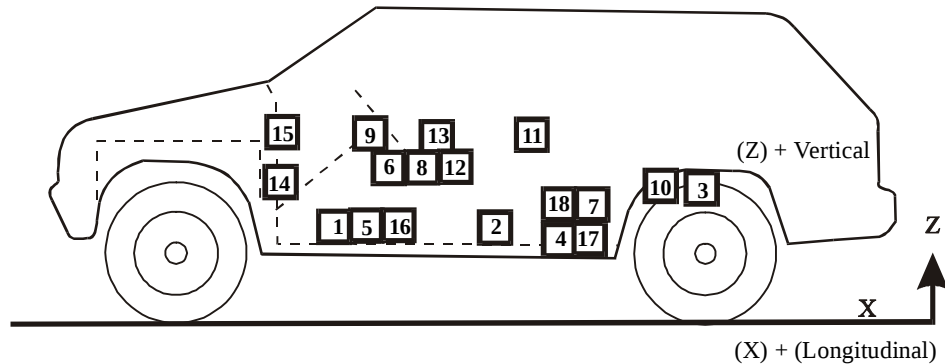


Data Sheet 13

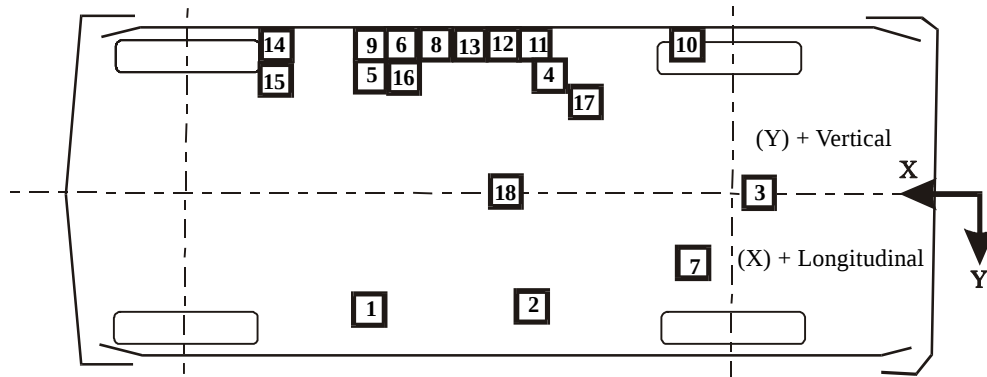
Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603



Side View



Bottom View

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

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data SummaryVehicle: 2002 Mitsubishi Montero SportNHTSA No.: M25603

TEST NUMBER: 011213

No. LOCATION

X

Y

Z

POSITIVE
DIRECTIONNEGATIVE
DIRECTION

1	RIGHT SIDE SILL	PRE	2804 mm	600 mm	505 mm				
	AT FRONT SEAT	POST	2804 mm	600 mm	435 mm				
	LONGITUDINAL					6.4 g	@ 14.7 ms	11.3 g	@ 8.6 ms
	LATERAL					22.7 g	@ 6.2 ms	3.8 g	@ 66.2 ms
	VERTICAL					9.9 g	@ 33.8 ms	13.1 g	@ 8.5 ms
	RESULTANT					25.9 g	@ 7.3 ms		
2	RIGHT SIDE SILL	PRE	1882 mm	645 mm	520 mm				
	AT REAR SEAT	POST	1882 mm	645 mm	407 mm				
	LONGITUDINAL					5.6 g	@ 14.8 ms	11.6 g	@ 8.6 ms
	LATERAL					31.5 g	@ 5.2 ms	2.5 g	@ 124.2 ms
	VERTICAL					7.2 g	@ 28.4 ms	12.4 g	@ 36.7 ms
	RESULTANT					31.6 g	@ 5.3 ms		
3	REAR FLOORPAN	PRE	1149 mm	-60 mm	670 mm				
	ABOVE AXLE	POST	1149 mm	-60 mm	575 mm				
	LONGITUDINAL					7.5 g	@ 12.5 ms	8.7 g	@ 22.4 ms
	LATERAL					24.8 g	@ 5.3 ms	3.6 g	@ 123.0 ms
	VERTICAL					7.6 g	@ 25.9 ms	9.0 g	@ 75.8 ms
	RESULTANT					25.5 g	@ 5.4 ms		
4	LEFT SIDE SILL	PRE	1884 mm	-645 mm	500 mm				
	AT REAR SEAT	POST	1884 mm	-645 mm	NA				
	LATERAL					102.2 g	@ 11.8 ms	58.2 g	@ 31.4 ms
5	LEFT SIDE SILL	PRE	2814 mm	-630 mm	500 mm				
	AT FRONT SEAT	POST	NA	NA	NA				
	LATERAL					90.8 g	@ 4.5 ms	53.6 g	@ 33.5 ms

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data SummaryVehicle: 2002 Mitsubishi Montero SportNHTSA No.: M25603TEST NUMBER: 011213
No. LOCATION

X

Y

Z

POSITIVE
DIRECTIONNEGATIVE
DIRECTION

6 LEFT FRONT DOOR ON CENTERLINE LATERAL	PRE	2762 mm	-730 mm	840 mm				
	POST	2762 mm	-730 mm	NA	174.2 g	@ 10.9 ms	116.6 g	@ 27.0 ms
7 RIGHT REAR OCCUPANT COMPARTMENT LATERAL	PRE	1570 mm	355 mm	675 mm				
	POST	1570 mm	355 mm	543 mm	31.9 g	@ 5.0 ms	3.4 g	@ 123.1 ms
8 LEFT FRONT DOOR MIDREAR LATERAL ¹	PRE	2389 mm	-730 mm	845 mm				
	POST	NA	NA	NA	232.9 g	@ 8.8 ms	126.5 g	@ 13.4 ms
9 LEFT FRONT DOOR UPPER CENTERLINE LATERAL ¹	PRE	2762 mm	-730 mm	1065 mm				
	POST	NA	NA	NA	---	---	---	---
10 LEFT REAR DOOR MIDREAR LATERAL	PRE	1579 mm	-740 mm	880 mm				
	POST	NA	NA	NA	129.8 g	@ 7.6 ms	57.6 g	@ 21.1 ms
11 LEFT REAR DOOR UPPER CENTERLINE LATERAL ¹	PRE	1814 mm	-740 mm	1055 mm				
	POST	NA	NA	NA	113.1 g	@ 9.2 ms	183.8 g	@ 28.2 ms
12 LEFT LOWER B-POST LATERAL	PRE	2229 mm	-714 mm	780 mm				
	POST	NA	NA	NA	154.8 g	@ 7.8 ms	57.3 g	@ 33.5 ms

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data SummaryVehicle: 2002 Mitsubishi Montero SportNHTSA No.: M25603

TEST NUMBER: 011213

No. LOCATION

X

Y

Z

POSITIVE
DIRECTIONNEGATIVE
DIRECTION

13 LEFT MIDDLE B-POST	PRE	2229 mm	-714 mm	1035 mm					
	POST	NA	NA	NA					
LATERAL					171.5 g	@	9.0 ms	50.2 g	@ 33.6 ms
14 LEFT LOWER A-POST	PRE	3219 mm	-730 mm	950 mm					
	POST	NA	NA	NA					
LATERAL					34.8 g	@	3.7 ms	25.5 g	@ 40.5 ms
15 LEFT MIDDLE A-POST	PRE	3214 mm	-730 mm	1065 mm					
	POST	NA	NA	NA					
LATERAL ¹					---	---		---	---
16 LEFT FRONT SEAT TRACK	PRE	2469 mm	-640 mm	495 mm					
	POST	NA	NA	NA					
LATERAL					93.6 g	@	4.6 ms	60.8 g	@ 32.9 ms
17 LEFT REAR SEAT TRACK	PRE	1600 mm	-640 mm	510 mm					
	POST	NA	NA	NA					
LATERAL					117.7 g	@	13.0 ms	37.2 g	@ 24.2 ms
18 VEHICLE CENTER	PRE	1869 mm	0 mm	665 mm					
OF GRAVITY	POST	1869 mm	0 mm	653 mm					
LONGITUDINAL					14.3 g	@	15.7 ms	17.5 g	@ 32.0 ms
LATERAL					37.2 g	@	4.1 ms	7.9 g	@ 57.4 ms
VERTICAL					17.4 g	@	38.7 ms	35.4 g	@ 4.7 ms
RESULTANT					53.0 g	@	4.6 ms		

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

¹ See DATA ACQUISITION EXPLANATIONS

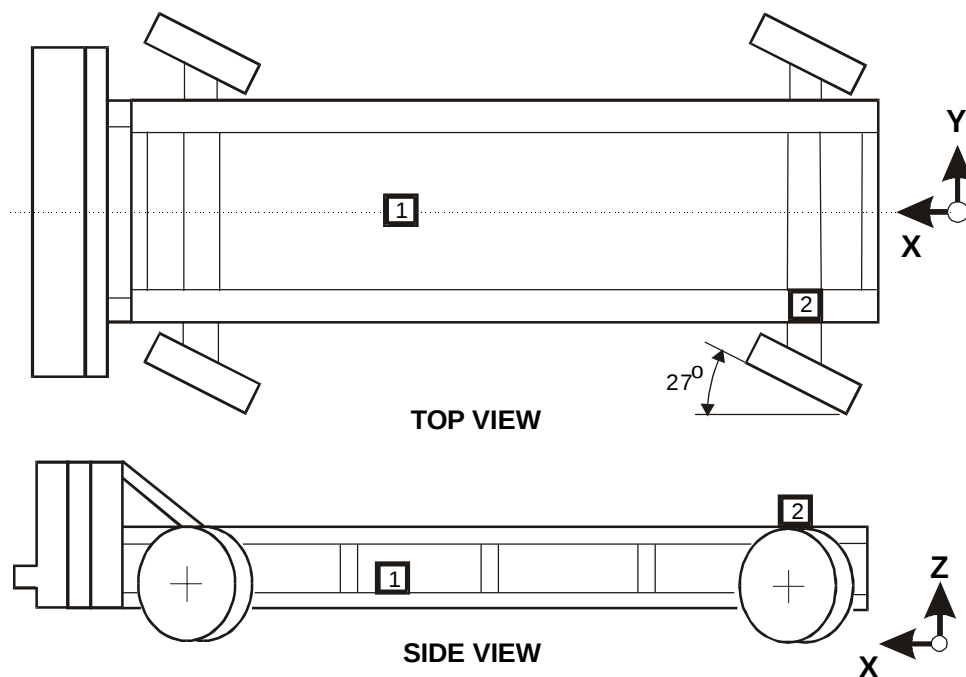
For acceleration data sign convention, see Report Sign Convention in Appendix D.

Data Sheet 14

MDB Accelerometer Locations and Data Summary

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603



Accel. No.	Location	Coordinates (millimeters)			Positive Direction		Negative Direction	
		X*	Y*	Z*	Max. (g)	Time (ms)	Max. (g)	Time (ms)
1	MDB Center of Gravity	1757	0	520				
	Longitudinal X				2.4	103.8	23.2	13.8
	Lateral Y				2.2	82.3	10.1	43.2
	Vertical Z				6.6	72.6	8.2	12.5
	Resultant R				24.2	13.6		
2	Rear Frame Member	410	-657	625				
	Longitudinal X				2.6	112.3	27.6	43.2
	Lateral Y				3.8	14.1	2.8	68.4

*Reference: X = Rear Bumper (+ Forward)

Y = Vehicle Centerline (+ To Right)

Z = Ground Level (+ Up)

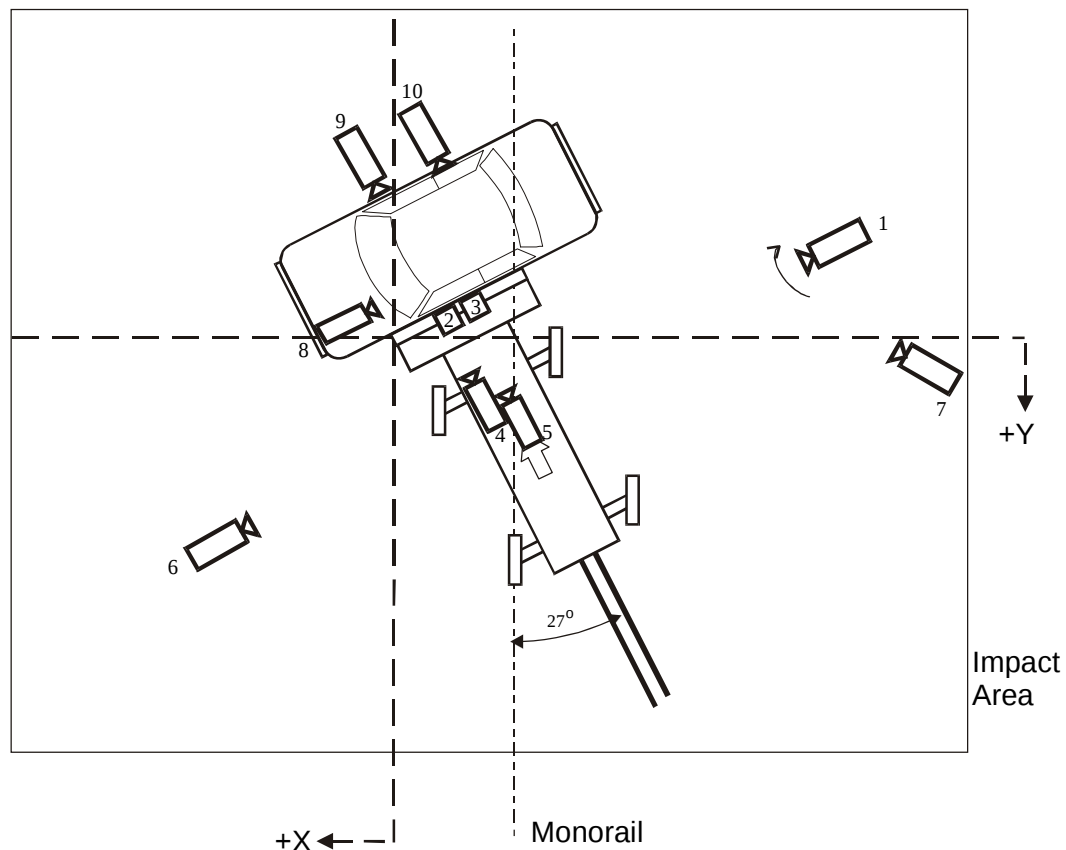
All measurements accurate to within ± 3 mm.

Data Sheet 15

High-Speed Camera Locations and Data Summary

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603



Camera Number	Location	Location, mm			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Real-time Panning	N/A	N/A	N/A	16	24
2	Overhead wide	N/A	N/A	7620	8.5	895
3	Overhead tight	N/A	N/A	7620	25	1005
4	Onboard MDB left side	-750	1640	779	13	1005
5	Onboard MDB center	-1850	1850	1338	25	1015
6	Front wide	3700	2980	1090	13	1010
7	Rear wide	-7100	270	1275	13	1002
8	Onboard vehicle front	670	-110	1465	13	1000
9	Onboard side front door	155	-1900	1220	8	1005
10	Onboard side rear door	-660	-2190	1275	8	1005

+X: As illustrated based on line parallel to monorail and passing through impact reference line.

+Y: As illustrated based on line perpendicular to monorail and passing through impact reference line.

+Z: Upward from ground level

Section 5

Vehicle Fuel System Integrity

Data Sheet 16

FMVSS 301 Fuel System Integrity Data

NHTSA No.: M25603

Test Date: December 26, 2002

Vehicle Year/Make/Model/Body Style: 2002 Mitsubishi Montero Sport

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)
☒ Side Impact Moving Deformable Barrier
(38.5 mph) contacting the ____ driver's side

Fuel Spillage Measurement:

1. From impact until vehicle motion ceases
2. For five-minute period after vehicle motion ceases
3. For next 25 minutes.

Actual	Maximum Allowed
0 g	28 g
0 g	142 g
0 g	28 g/1 minute

Solvent Spillage Details :

None

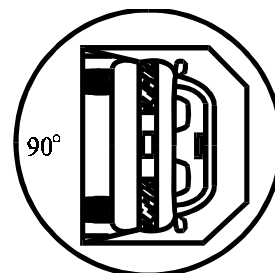
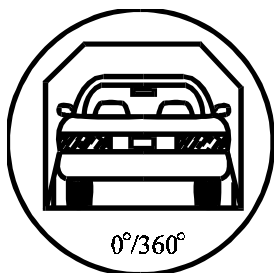
Data Sheet 17

FMVSS 301 Rollover Data

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

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

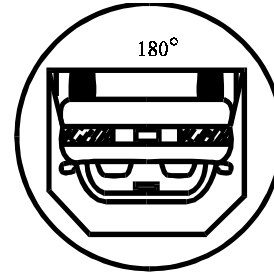
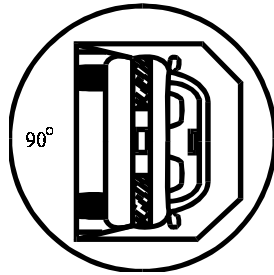
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

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

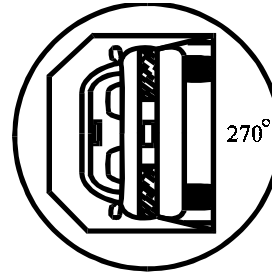
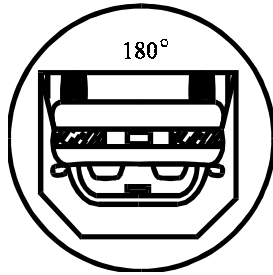
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

180 - 270 Degrees



1. Determination of Solvent Collection Time Period:

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

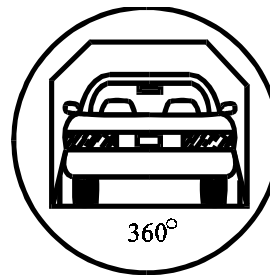
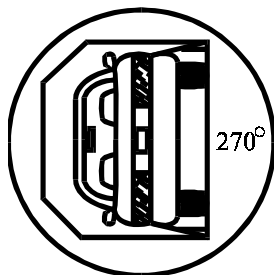
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2002 Mitsubishi Montero Sport

NHTSA No.: M25603

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

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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

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Test Vehicle Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

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Moving Deformable Barrier Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

Contact Data - Filter Class 1000

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Driver And Passenger Dummy Instrumentation Plots

Acceleration Data - FIR100 Filtered

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Appendix C

SID Configuration And Performance Verification Data

Summary
SID Pre-Test And Post-Test Calibration

Configured For Left Side Impact

Calibration Dates: Pre: December 5th and 12th, 2001
 Post: December 17th and 19th, 2001
 Laboratory Technician: Jack Willeke
 TRC Inc. Calibration Numbers: SN 272 CAL02-03; SN 269 CAL02-03

Test Parameter	Specification	SID 272		SID 269	
		Pre-Test	Post-Test	Pre-Test	Post-Test
SH – Seated Height (mm)	889-909	901.7	904.2	894.1	899.2
RH – Rib Height (mm)	502-520	510.5	514.3	510.5	505.5
HP – Hip Pivot Height (mm)	99 ref	99.1	99.1	99.0	99.1
RD – Rib from Back Line (mm)	229-241	236.2	236.2	234.9	236.2
KV - Knee Pivot from Back Line (mm)	511-526	515.6	520.7	523.2	515.6
SW - Knee Pivot to Floor (mm)	490-505	500.4	500.4	495.3	495.3
HW - Hip Width (mm)	356-391	378.5	386.1	378.5	383.5
Thorax Impacts					
Temperature (°C)	18.9-25.5	21.1	21.7	21.7	21.7
Relative Humidity (%)	10-70	36	45	28	28
Probe Speed (m/s)	4.27-4.33	4.28	4.31	4.32	4.33
Upper Rib (g's)	37-46	40.3	42.7	41.7	39.5
Lower Rib (g's)	37-46	38.4	41.5	40.6	38.6
Lower Spine (g's)	15-22	18.7	21.3	19.0	17.5
Pelvis Impacts					
Temperature (°C)	18.9-25.5	21.7	21.7	21.7	21.7
Relative Humidity (%)	10-70	41	27	30	25
Probe Speed (m/s)	4.27-4.33	4.29	4.31	4.29	4.28
Pelvis (g's)	40-60	40.7	43.4	58.7	57.3

Calibration Test Results

Pre-Test

SID: 272

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 Test:	The lateral pelvis passed all impact test requirements.
Thoracic Shock Absorber:	The thorax passed all shock absorber requirements (tested on November 23, 2001 for previous calibration series).
Abdominal Compression Test:	The abdomen met the Part572B compression test requirements.
Lumbar Flexion Test:	The dummy met the Part572B lumbar flexion test requirements.

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 Test:	The lateral pelvis passed all impact test requirements.
Thoracic Shock Absorber:	The thorax passed all shock absorber requirements (tested on November 26, 2001 for previous calibration series).
Abdominal Compression Test:	The abdomen met the Part572B compression test requirements.
Lumbar Flexion Test:	The dummy met the Part572B lumbar flexion test requirements.

Calibration Test Results

Post-Test

SID: 272

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 Test:	The lateral pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen met the Part572B compression test requirements.
Lumbar Flexion Test:	The dummy met the Part572B 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 Test:	The lateral pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen met the Part572B compression test requirements.
Lumbar Flexion Test:	The dummy met the Part572B lumbar flexion test requirements.

Type: SID S/N: 272 Mfr: First Tech Test Date: 12/13/01
 Proj./Seg. No.: 19970454-3300 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	X	
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) X	(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 mid-calf pants	X	
Clothes	X	
Shoes	X	
Knee and Ankle One G Joint Adjustments	X	

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

Type: SID S/N: 269 Mfr: First Tech Test Date: 12/13/01
 Proj./Seg. No.: 19970454-3300 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	X	
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) X	(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 mid-calf pants	X	
Clothes	X	
Shoes	X	
Knee and Ankle One G Joint Adjustments	X	

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

Type: SID S/N: 269 Mfr: First Tech Test Date: 12/13/01
 Proj./Seg. No.: 19970454-3300 Test Eng.: Ginny Watters

Item	Post-Use
Head:	
Head Skin Condition	X
Head Ballast Condition	
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:	
Iliac 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: 12/14/01

Type: SID S/N: 272 Mfr: First Tech Test Date: 11/29/01
 Proj./Seg. No.: 19970454-3300 Test Eng.: Ginny Watters

Item	Post-Use
Head:	
Head Skin Condition	X
Head Ballast Condition	
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:	
Iliac 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: 12/14/01

Appendix D

Test Equipment List and Calibration Information

Report Sign Convention
SAE J211 MAR95

<u>Accelerometers:</u>	+X: Forward
	+Y: Rightward
	+Z: Downward
<u>Potentiometers:</u>	+Chest longitudinal deflection: Outward
	+Chest lateral deflection: Leftward
	+Seat belt displacement: Outward
	+Seat belt extension: Elongation
	+Knee slider displacement: Distance between femur and tibia increased (in relation to a seated dummy)
<u>Rotation potentiometers:</u>	
	+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
<u>Load cells:</u>	+Femur force: Tension
	+Seat belt force: Tension
	+Barrier force: Tension
<u>Neck load cells:</u>	+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
<u>Tibia load cells:</u>	+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

¹ The chest deflection and knee slider displacement presented in the dummy certification in Appendix C are opposite of J211 polarity.

Frequency Response Classes
SAE J211 MAR95

<u>Typical Test Measurements</u>	<u>Channel Class</u>
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	180
Rib accelerations	1000
Sternum accelerations	1000
Deflections	180
Lumbar	
Forces	1000
Moments	1000
Pelvis	
Accelerations	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

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

12/26/2001 9:28:15 AM

Name of Test 011213

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 OK	-1	TRC	Event
1001	J26498	HEDXG1	Driver. Head Accel X	Rwd	799.45038	G	- 11/23/2001 OK	272n	Endevco	7264-2000TZ
1002	J26491	HEDYG1	Driver. Head Accel Y	Lft	797.07945	G	- 11/23/2001 OK	272n	Endevco	7264-2000TZ
1003	J26499	HEDZG1	Driver. Head Accel Z	Up	801.87940	G	- 11/23/2001 OK	272n	Endevco	7264-2000TZ
1004	J28884	LURYG1	Driver. Left Upper Rib Y	Rgt	802.50784	G	+ 11/23/2001 OK	272n	Endevco	7264-2000TZ
1005	J28868	LURYR1	Driver. Left Upper Rib Red Y	Rgt	806.96003	G	+ 11/23/2001 OK	272n	Endevco	7264-2000TZ
1006	J27117	LLRYG1	Driver. Left Lower Rib Y	Rgt	796.14368	G	+ 11/23/2001 OK	272n	Endevco	7264-2000TZ
1007	J27359	LLRYR1	Driver. Left Lower Rib Red Y	Rgt	801.47772	G	+ 11/23/2001 OK	272n	Endevco	7264-2000TZ
1008	J27051	T12YG1	Driver. Lower Spine Y	Lft	399.85162	G	- 11/21/2001 OK	272n	Endevco	7264-2000TZ
1009	J20025	T12YR1	Driver. Lower Spine Red Y	Lft	400.75298	G	- 11/21/2001 OK	272n	Endevco	7264-2000TZ
1010	J20243	PEVYG1	Driver. Pelvis Accel Y	Lft	401.40806	G	- 11/21/2001 OK	272n	Endevco	7264-2000TZ
1011	J20462	PEVYR1	Driver. Pelvis Accel Red Y	Rgt	399.58792	G	+ 11/21/2001 OK	272n	Endevco	7264-2000TZ
1012	J28754	HEDXG4	Left Rear Passenger Head Accel	Rwd	808.65514	G	- 11/21/2001 OK	269n	Endevco	7264-2000TZ
1013	J27345	HEDYG4	Left Rear Passenger Head Accel	Lft	805.96921	G	- 11/21/2001 OK	269n	Endevco	7264-2000TZ
1014	J27116	HEDZG4	Left Rear Passenger Head Accel	Up	793.30033	G	- 11/21/2001 OK	269n	Endevco	7264-2000TZ
1015	J34509	LURYG4	Left Rear Passenger Left Upper	Rgt	806.44526	G	+ 11/21/2001 OK	269n	Endevco	7264-2000TZ
1016	ANBH3	LURYR4	Left Rear Passenger Left Upper	Rgt	805.53807	G	+ 11/21/2001 OK	269n	Endevco	7264-2000TZ
1017	AGRG8	LLRYG4	Left Rear Passenger Left Lower	Rgt	797.85576	G	+ 11/21/2001 OK	269n	Endevco	7264-2000TZ
1018	J20005	LLRYR4	Left Rear Passenger Left Lower	Rgt	792.9379	G	+ 11/21/2001 OK	269n	Endevco	7264-2000TZ
1019	J27929	T12YG4	Left Rear Passenger Lower Spin	Lft	398.62971	G	- 11/23/2001 OK	269n	Endevco	7264-2000TZ
1020	J27948	T12YR4	Left Rear Passenger Lower Spin	Lft	398.92011	G	- 11/23/2001 OK	269n	Endevco	7264-2000TZ
1021	J27503	PEVYG4	Left Rear Passenger Pelvis Acce	Lft	398.85174	G	- 11/23/2001 OK	269n	Endevco	7264-2000TZ
1022	J34631	PEVYR4	Left Rear Passenger Pelvis Acce	Rgt	399.11913	G	+ 11/23/2001 OK	269n	Endevco	7264-2000TZ
1023	J35771	RFSXG1	RGT SIDE SILL FRNT ST X	FWD	399.95001	G	+ 9/7/2001 OK	-1	Endevco	7264-2000TZ
1024	J35834	RFSYG1	RGT SIDE SILL FRNT ST Y	LT	1012.0177	G	- 9/7/2001 OK	-1	Endevco	7264-2000TZ
1025	J35879	RFSZG1	RGT SIDE SILL FRNT ST Z	UP	398.04244	G	- 9/7/2001 OK	-1	Endevco	7264-2000TZ
1026	J37089	RRSXG1	RGT SIDE SILL RR ST X	FWD	401.02135	G	+ 7/17/2001 OK	-1	Endevco	7264-2000TZ
1027	J37990	RRSYG1	RGT SIDE SILL RR ST Y	LT	991.8348	G	- 9/7/2001 OK	-1	Endevco	7264-2000TZ
1028	J37152	RRSZG1	RGT SIDE SILL RR ST Z	UP	398.35988	G	- 7/16/2001 OK	-1	Endevco	7264-2000TZ
1029	J38779	RDKXG1	RR FLRPAN ABV AXLE X	FWD	994.25198	G	+ 10/29/2001 OK	-1	Endevco	7264-2000TZ

Channel Report

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1030	J40088	RDYGY1	RR FLRPAN ABV AXLE Y	RT	1003.5870	G	+	10/29/2001	OK	-1	Endevco	7264-2000TZ
1031	J39618	RDKZG1	RR FLRPAN ABV AXLE Z	UP	1004.8673	G	-	10/29/2001	OK	-1	Endevco	7264-2000TZ
1032	J38149	LFSYG1	LFT SIDE SILL FRNT ST Y	LT	1013.0189	G	-	8/30/2001	OK	-1	Endevco	7264-2000TZ
1033	J37955	LRSYG1	LFT SIDE SILL RR ST Y	LT	1009.2150	G	-	9/7/2001	OK	-1	Endevco	7264-2000TZ
1034	J35748	LFCYG1	LFT FRNT DOOR CTRLN Y	RT	1517.6441	G	+	6/20/2001	---	-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	J30421	LFMYG1	LFT FRNT DOOR MIDRR Y	RT	1493.9963	G	+	6/19/2001	---	-1	Endevco	7264-2000TZ
1037	J39170	LFUYG1	LFT FRNT DOOR UPPER CL	RT	1503.1413	G	+	12/4/2001	OK	-1	Endevco	7264-2000TZ
1038	J35536	LRMYG1	LFT RR DORR MIDREAR Y	RT	1524.7171	G	+	9/7/2001	OK	-1	Endevco	7264-2000TZ
1039	J38848	LRUYG1	LT RR DR UPPER CL Y	RT	1525.3530	G	+	10/29/2001	OK	-1	Endevco	7264-2000TZ
1040	J39658	LLAYG1	LFT LOWER A-POST Y	LT	1513.0918	G	-	11/16/2001	OK	-1	Endevco	7264-2000TZ
1041	J39562	LMAYG1	LFT MID A-POST Y	LT	1488.6101	G	-	11/16/2001	OK	-1	Endevco	7264-2000TZ
1042	J38076	LLBYG1	LFT LOWER B-POST Y	RT	1495.5237	G	+	9/7/2001	OK	-1	Endevco	7264-2000TZ
1043	J37655	LMBYG1	LFT MID B-POST Y	RT	1508.9891	G	+	9/7/2001	OK	-1	Endevco	7264-2000TZ
1044	J36595	LFTYG1	LFT FRNT ST TRK Y	LT	1483.4130	G	-	9/7/2001	OK	-1	Endevco	7264-2000TZ
1045	J38645	LRTYG1	LFT RR ST TR Y	RT	1491.3852	G	+	11/16/2001	OK	-1	Endevco	7264-2000TZ
1046	J39361	VCGXG1	VEH C/G X	FWD	988.56966	G	+	10/29/2001	OK	-1	Endevco	7264-2000TZ
1047	J39667	VCGYG1	VEH C/G Y	LT	991.42188	G	-	10/29/2001	OK	-1	Endevco	7264-2000TZ
1048	J39649	VCGZG1	VEH C/G Z	UP	1008.3008	G	-	10/29/2001	OK	-1	Endevco	7264-2000TZ

011213

Name of Test 011213 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
D-7	MSB = bit 15	1		EVENT	EVENT	
	bit 14	1		SHLET1	Driver Shoulder Contact Switch	A
	bit 13	1		PEVET1	Driver Pelvis Contact Switch	B
	bit 12	1		SHLET4	LT RR PSNG SHLD Switch	C
	bit 11	1		PEVET4	LT RR PHNG 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				

Channel Report

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Name of Test 011213 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 Center of Gravity X-axis A	FWD	603.93026	G	+ 9/7/2001 OK	-1	Endevco	7264-2000TZ
7003	J38570	BCGYG1	MDB Center of Gravity Y-axis A	LT	598.30558	G	- 9/7/2001 OK	-1	Endevco	7264-2000TZ
7004	J38007	BCGZG1	MDB Center of Gravity Z-axis A	UP	606.08213	G	- 9/19/2001 OK	-1	Endevco	7264-2000TZ
7005	J37996	LRRYG1	MDB Left Rear Y-axis Accelerat	LT	596.27792	G	+ 9/7/2001 OK	-1	Endevco	7264-2000TZ
7006	J38421	LRRXG1	MDB Left Rear X-axis Accelerat	FWD	599.18782	G	- 10/29/2001 OK	-1	Endevco	7264-2000TZ

D-8

011213

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 N·m	282.5	08/16/2001	Rt Ear to Rt Shld	1
!NEKYM	Neck Moment Y	1716A	1716A-858-MY	Denton	0.005966726 N·m	282.5	08/16/2001	Chn to Strnm	0
!NEKZM	Neck Moment Z	1716A	1716A-858-MZ	Denton	0.008246372 N·m	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 272n Type SID Description NHTSA - 272n SID-LEFT IMP. CONFIG. CAL DUE 5-17-02(DKS 11-26-01)J211

Chsname	Location	Model	Name	Manufacturer	Sens./mV/V/U	Fullscale	Caldate	Pos Output	Flip
HEDXG	Head Accel X	7264-2000TZ	J26498	Endevco	0.02372 g	2000	11/23/2001	Rwd	1
HEDYG	Head Accel Y	7264-2000TZ	J26491	Endevco	0.02519 g	2000	11/23/2001	Lft	1
HEDZG	Head Accel Z	7264-2000TZ	J26499	Endevco	0.02554 g	2000	11/23/2001	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 N·m	282.5	08/16/2001	Rt Ear to Rt Shld	1
!NEKYM	Neck Moment Y	1716A	1716A-858-MY	Denton	0.005966726 N·m	282.5	08/16/2001	Chn to Strnm	0
!NEKZM	Neck Moment Z	1716A	1716A-858-MZ	Denton	0.008246372 N·m	282.5	08/16/2001	Chn to Lt Shld	0
LURYG	Left Upper Rib Y	7264-2000TZ	J28884	Endevco	0.029 g	2000	11/23/2001	Rgt	0
LURYGR	Left Upper Rib Red Y	7264-2000TZ	J28868	Endevco	0.02884 g	2000	11/23/2001	Rgt	0
LLRYG	Left Lower Rib Y	7264-2000TZ	J27117	Endevco	0.0218 g	2000	11/23/2001	Rgt	0
LLRYGR	Left Lower Rib Red Y	7264-2000TZ	J27359	Endevco	0.02366 g	2000	11/23/2001	Rgt	0
T12YG	Lower Spine Y	7264-2000TZ	J27051	Endevco	0.02439 g	2000	11/21/2001	Lft	1
T12YGR	Lower Spine Red Y	7264-2000TZ	J20025	Endevco	0.02871 g	2000	11/21/2001	Lft	1
PEVYG	Pelvis Accel Y	7264-2000TZ	J20243	Endevco	0.03111 g	2000	11/21/2001	Lft	1
PEVYGR	Pelvis Accel Red Y	7264-2000TZ	J20462	Endevco	0.02488 g	2000	11/21/2001	Rgt	0

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



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

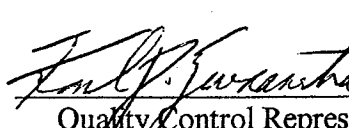
Customer P.O. Number: 14572
Work Order Number: 10512
Quantity: 05 pieces

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.


Quality Control Representative
Karl D. Zwaanstra





PLASCORE

Crush Data

232 - 250 psi per DWG # DSL-1285

Block Number: 033A0801

<u>Specimen Number</u>	<u>Zone 1</u>	<u>Zone 2</u>	<u>Zone 3</u>
1	232.12	233.03	236.22
2	239.79	244.02	245.85
3	233.62	235.47	234.04
4	243.59	243.72	244.91
5	234.15	234.82	235.01
6	234.74	236.21	238.29
7	233.99	233.53	236.16

BLOCK # 033A0801 Sample ID: IN323473

