

636001

V4221

REPORT NUMBER: 214D-MGA-2002-010

**SAFETY COMPLIANCE TESTING FOR FMVSS 214
SIDE IMPACT PROTECTION**

Hyundai Motor Company
2003/Hyundai/Tiburon/2 Door
NHTSA NUMBER: C30500

**PREPARED BY:
MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53105**



April 9, 2002

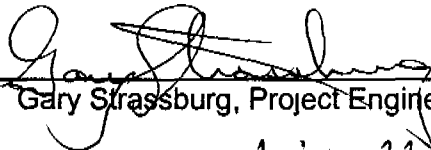
FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, SW, ROOM 6111 (NSA-30)
WASHINGTON, D.C. 20590**

This final test report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, in response to Contract Number DTNH22-97-C-11033.

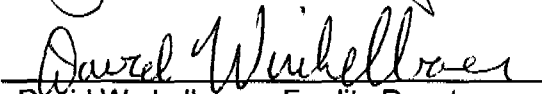
This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared by:


Gary Strassburg, Project Engineer

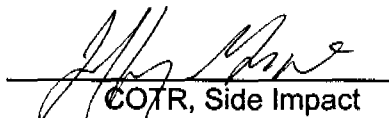
Date: 4/18/02

Reviewed by:


David Winkelbauer, Facility Director

Date: 4/18/02

FINAL REPORT ACCEPTED BY:


COIR, Side Impact
5/0/02
Date of Acceptance

Technical Report Documentation Page

1 Report No 214D-MGA-2002-010	2 Government Accession No.	3 Recipient's Catalog No																			
4 Title and Subtitle Final Report of the FMVSS 214D Compliance Side Impact Test of a 2003/Hyundai/Tiburon/2 Door NHTSA No C30500		5 Report Date 4/16/02																			
		6 Performing Organization Code MGA																			
7 Author(s) Gary Strassburg, Project Engineer		8 Performing Organization Report No 214D-MGA-2002-010																			
9 Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105		10. Work Unit No																			
		11. Contract or Grant No. DTNH22-97-C-11033																			
12 Sponsoring Agency Name and Address U S Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards 400 Seventh St , S W Washington, D C 20590		13 Type of Report and Period Covered Final Report 4/9/02 to 4/16/02																			
		14 Sponsoring Agency Code NPS-10																			
15 Supplementary Notes																					
16. Abstract A 48/24 km/h 90° Moving Deformable Barrier side impact was conducted on a 2003 Hyundai Tiburon in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure No TP-214D-06 Side Impact Protection for determination of FMVSS 214 compliance The test was conducted at MGA Research Corporation, in Burlington, Wisconsin on April 9, 2002 The impact velocity of the Moving Deformable Barrier (MDB) was 52.6 kph, and the ambient temperature at the struck side (drivers) of the vehicle was 20°C The target vehicle's maximum post test static crush was 260 mm at level 3 The test vehicle's occupant performance is as follows <table border="1"> <thead> <tr> <th></th><th>DRIVER</th><th>PASS *</th></tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) Accel , g</td><td>55</td><td>46</td></tr> <tr> <td>Left Lower Rib (LLR) Accel , g</td><td>51</td><td>60</td></tr> <tr> <td>Lower Spine (T₁₂) Accel , g</td><td>39</td><td>57</td></tr> <tr> <td>Thoracic Trauma Index (TTI)</td><td>47</td><td>58</td></tr> <tr> <td>Pelvis (PEV) Accel , g</td><td>69</td><td>55</td></tr> </tbody> </table> The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event * This data is for informational purposes only, SID couldn't be seated according to TP so this position is exempt from performance requirements					DRIVER	PASS *	Left Upper Rib (LUR) Accel , g	55	46	Left Lower Rib (LLR) Accel , g	51	60	Lower Spine (T ₁₂) Accel , g	39	57	Thoracic Trauma Index (TTI)	47	58	Pelvis (PEV) Accel , g	69	55
	DRIVER	PASS *																			
Left Upper Rib (LUR) Accel , g	55	46																			
Left Lower Rib (LLR) Accel , g	51	60																			
Lower Spine (T ₁₂) Accel , g	39	57																			
Thoracic Trauma Index (TTI)	47	58																			
Pelvis (PEV) Accel , g	69	55																			
17 Key Words Compliance Testing FMVSS 214D Side Impact Dummy (SID) Occupant Side impact Protection		18 Distribution Statement Copies of this report are available from. National Highway Traffic Safety Adm Technical Ref Division, Room 5108 (NAD-52) 400 Seventh Street, S W Washington, D C 20590																			
19 Security Classif (of this report) Unclassified	20 Security Classif. (of this page) Unclassified	21 No of Pages 199	22 Price																		

TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	Purpose and Test Procedure	1
2	Summary of Side Impact Test	2
3	Side Impact Dummy (SID) and Test Vehicle Data	4
4	Occupant and Vehicle Information	12

<u>Data Sheet No</u>		<u>Page No.</u>
1	General Test and Vehicle Parameter Data	5
2	Test Vehicle Summary of Results	9
3	Moving Deformable Barrier (MDB) Summary of Results	10
4	Post Test Observations	11
5	SID Injury Criteria and Sensor Data	13
6	Vehicle Pre-Test and Post Test Measurements	14
7	SID Longitudinal Clearance Dimensions	15
8	SID Lateral Clearance Dimensions	16
9	Vehicle Side Measurements	17
10	Vehicle Exterior Crush Profiles	18
11	Vehicle Damage Profile Distances	20
12	Deformable Barrier Honeycomb Face Static Crush	21
13	Vehicle Accelerometer Locations and Data Summary	22
14	MDB Accelerometer Locations and Data Summary	24
15	High Speed Camera Locations and Data	25
16	FMVSS 301 Fuel System Integrity Post Impact Data	26
17	FMVSS 301 Static Rollover Data Sheet	27

Appendix

A	Photographs	A
B	SID, Vehicle, and MDB Response Data	B
C	SID Configuration and Performance Verification Data	C
D	Test Equipment List and Calibration Information	D

SECTION 1

PURPOSE AND TEST PROCEDURE

1.1 PURPOSE

This Side Impact test was conducted as part of the FY' 2001 test program sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract No. DTNH22-97-C-11033. The purpose of this test was to evaluate side impact protection in a 2003 Hyundai Tiburon manufactured by Hyundai Motor Company.

1.2 TEST PROCEDURE

The side impact test was conducted in accordance with the current National Highway Traffic Safety Administration (NHTSA), Office of Vehicle Safety Compliance (OVSC), laboratory test procedure Side Impact Testing TP-214D-06, dated August 2, 1999 and the corresponding MGA Research Corporation Test Procedure MGA-NHTSA2. The procedures for receiving, inspection, testing, and reporting of test results are described in the test procedures and are not repeated in this report.

MGA does not endorse or certify products. The manufacturer's name appears solely for identification purposes.

SECTION 2

SUMMARY OF SIDE IMPACT TEST

2.1 SUMMARY OF SIDE IMPACT TEST

A 2003 Hyundai Tiburon was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 52.6 km/h. The specified impact velocity range is from 52.1 to 53.7 km/h. The test (target) vehicle was stationary and positioned 63° to the line of forward motion. The weight of the vehicle as tested was 1616.1 kg and the test weight of the MDB was 1362 kg. The test was conducted at MGA Research Corporation in Burlington, Wisconsin, on April 9, 2002.

One (1) real-time motion picture camera and nine (9) high-speed motion picture cameras were used to document the impact event. The pre-test and post-test conditions were recorded by one (1) real-time motion picture camera. Camera locations and pertinent camera information are documented in the data sheets. Pre- and post-test photographs of the vehicle and Side Impact Dummies (SID's) can be found in Appendix A. Two 50th percentile adult male SID's were placed in the driver and left rear passenger designated seating positions according to instructions specified in the OVSC Laboratory Test Procedure dated August 2, 1999. Each SID was instrumented with eight (8) accelerometers in the following locations:

- Left Upper Rib (LUR) uni-axial accelerometer (Y-axis primary and redundant)
- Left Lower Rib (LLR) uni-axial accelerometer (Y-axis primary and redundant)
- Lower Thoracic Spine (T12) uni-axial accelerometer (Y-axis primary and redundant)
- Pelvic (PEV) section uni-axial accelerometer (Y-axis primary and redundant)

The test vehicle was instrumented with twenty (20) structural accelerometers and the MDB was instrumented with five (5) accelerometers and two (2) contact switches on the bumper to compare left side to right side bumper impact timing. All data channels were recorded with a fully self contained on-board EME Data Acquisition System. The data was digitally sampled at 10,000 samples per second and processed per Appendix V of the Test Procedure.

2.2 GENERAL COMMENTS

The test vehicle sustained a maximum static crush of 260 mm at level 3, 1650 mm rearward of the left vertical impact point. The driver and passenger SID's, Serial Nos. 36 and 37 respectively, were calibrated just prior to this test. The SID's injury criterion is summarized as follows:

Measurements	Units	Driver	Passenger
Thoracic Trauma Index (TTI)	G's	47	58
Peak Pelvic G's (PEV)	G's	69	55

Test summaries and post-test observations are presented in Section 3. The vehicle, camera, and occupant measurements are presented in Section 4. Appendix A contains the still photograph prints. Appendix B contains the driver and passenger SID's, vehicle, and MDB response data traces. Appendix C contains the SID's configuration and performance verification data. Appendix D contains the test equipment information.

TEST NOTES

The following accelerometers were not used for this test:

Left Front Door on Centerline
Midrear of Left Front Door
Left Front Door Upper Centerline
Midrear of Left Rear door
Left Rear Door Upper Centerline
Rear Seat Track

The rear dummy head was removed to allow the dummy to be placed in the left rear seating position. The dummy was not able to be placed with a pelvic angle in accordance with the laboratory test procedure.

SECTION 3
SIDE IMPACT DUMMY (SID) AND VEHICLE TEST DATA

Test Vehicle: 2003/Hyundai/Tiburon/2 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
 Test Date: 4/9/02

CONVERSION FACTORS USED IN THIS REPORT*

Quantity	Typical Application	English Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	mile/h	km/h	1.609
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.573
Pressure	Tire Pressure	lb/in ²	kPa	7.0
Volume	Liquid	gal	liter	3.785
Temperature	General Use	°F	°C	$=(t_f - 32)/1.8$
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf/ft	Nm	1.355

*Based on the Recommended Practice in SAE J916, May 85

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2003/Hyundai/Tiburon/2 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
 Test Date: 4/9/02

TEST VEHICLE INFORMATION

Make	Hyundai
Model	Tiburon
Body Style	2 door
NHTSA No.	C30500
VIN	KMHHN65F03U008127
Color	Red
Delivery Date	February 21, 2002
Odometer Reading (mile)	28
Dealer	Rosen
Transmission	Automatic
Final Drive	Front
Number of Cylinders	4
Engine Displacement (L)	2.7
Engine Placement	Lateral

TEST VEHICLE OPTIONS

Front Airbag	Yes
Side Airbags	Yes
Power Windows	Yes
Power Steering	Yes
Power Door Locks	Yes
Tilt Wheel	Yes
Air Conditioning	Yes
Power Brakes	Yes
Disc Brakes, Front	Yes
Disc Brakes, Rear	Yes
Anti-lock Brakes	No
AM/FM/Cassette/CD	Yes
Anti-theft System	No
Cruise Control	Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Hyundai Motor Company
Date of Manufacture	11/14/01

GVWR (kg)	1753
GAWR Front (kg)	1000
GAWR Rear (kg)	860

DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	240	210
Test / Cold Pressure (kPa)	240	210
Recommended Tire Size	P205/55R16	P205/55R16
Tire Size on Vehicle	P205/55R16	P205/55R16
Tire Manufacturer	Michelin	Michelin

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Contour		
Number Of Occupants X 68.04 kg	2	2		272.2
Capacity Wt. (VCW) (kg)				317.0
Cargo Wt. (RCLW) (kg)				44.8

DATA SHEET NO. 1... (continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2003/Hyundai/Tiburon/2 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
 Test Date: 4/9/02

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	449.1	268.5		503.9	345.6	
Right	kg	441.4	258.6		455.4	311.2	
Ratio	%	62.8	37.2		59.3	40.7	
Totals	kg	890.5	527.1	1417.6	959.3	656.8	1616.1

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1417.6
Weight of 2 P572E ATDs	kg	161.5
Rated Cargo/Luggage Weight (RCLW)	kg	44.8
Calculated Vehicle Target Weight (TVTW)	kg	1623.9

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG(aft of front axle)
As Delivered	mm	672	674	672	673	943
As Tested	mm	659	665	639	645	1031
Fully Loaded	mm	657	668	635	643	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2536
Total Vehicle Length at Left Side	mm	3645
Total Vehicle Length at Centerline	mm	4356
Total Vehicle Length at Right Side	mm	3645
Total Vehicle Width	mm	1700
Weight of Ballast in Cargo Area	kg	36.3
Amount of Stoddard Solvent in Fuel Tank	liters	51.1

TEST VEHICLE VERTICAL IMPACT LINE DATA

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2536
Target Impact Point Aft of Front Axle	mm	328
Actual Impact Point Aft of Front Axle	mm	334

DATA SHEET NO. 1... (continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2003/Hyundai/Tiburon/2 Door
Test Program: FMVSS 214 Indicant Side Impact

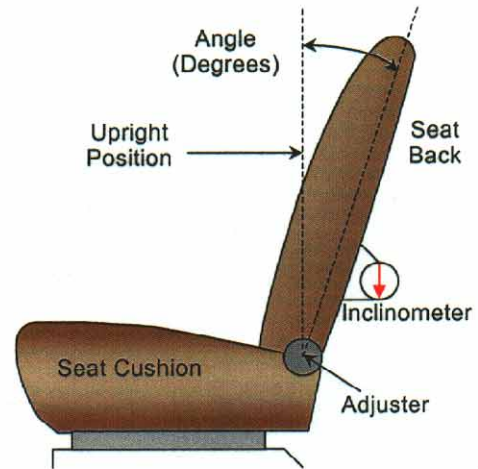
NHTSA No. C30500
Test Date: 4/9/02

NORMAL DESIGN RIDING POSITION

The driver seat is positioned to the manufacturer's designated angle. The procedure for the seat is as follows: 22.5 degrees seat back angle is measured along the rear edge of the metal seat back frame from vertical line (dummy in seat)

Driver seat back angle: 22.2 deg

Passenger seat back angle: Non adjustable



FRONT SEAT ASSEMBLY

SEAT FORE/AFT POSITIONS

The driver's seat is manually adjustable and the rear passenger seat has no adjustments. The fore/aft is set to the middle position for the driver's seat. The first detent is numbered "1".

Driver seat fore/aft total travel: 25 detents

Passenger seat fore/aft total travel: non adjustable

Driver seat fore/aft position: 13th detent, 1st as 1

Passenger seat fore/aft position: non adjustable

SEAT BELT UPPER ANCHORAGE

The test vehicle is equipped with adjustable "D" ring anchorage for the driver's seat position. There are 4 positions, with the uppermost position numbered "1". The driver's "D" ring anchorage is placed in position 2.

DATA SHEET NO. 1... (continued)

TEST VEHICLE INFORMATION

Test Vehicle: 2003/Hyundai/Tiburon/2 Door
Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
Test Date: 4/9/02

FUEL TANK CAPACITY DATA

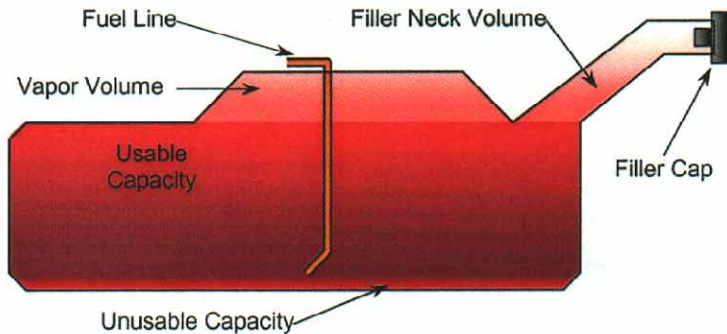
The "Usable Capacity" of the standard equipment fuel tank is: 54.9 liters

The "Usable Capacity" of any optional equipment fuel tank is: n/a liters

92-94% of "Usable Capacity" for certification to FMVSS 301 requirements: 50.5-51.6 liters

Actual amount of Stoddard solvent added to vehicle for certification test: 51.5 liters

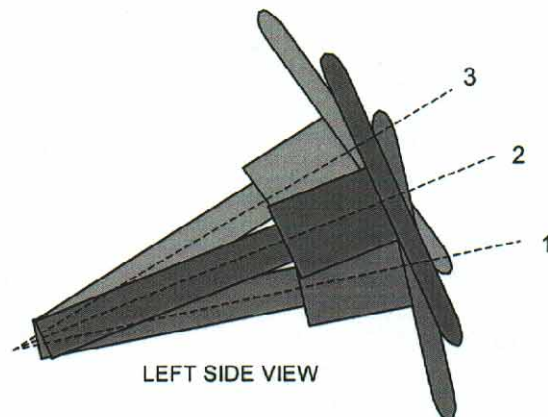
The test vehicle is equipped with an electric fuel pump. The fuel filler door is located on the left rear fender.



VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

The steering wheel is placed in the fourth notch of seven total.



STEERING COLUMN ASSEMBLY

DATA SHEET NO. 2

TEST VEHICLE SUMMARY OF RESULTS

Test Vehicle: 2003/Hyundai/Tiburon/2 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
 Test Date: 4/9/02

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	449.1	268.5		503.9	345.6	
Right	kg	441.4	258.6		455.4	311.2	
Weight Ratio	%	62.8	37.2		59.3	40.7	
Totals	kg	890.5	527.1	1417.6	959.3	656.8	1616.1

MAXIMUM EXTERIOR STATIC CRUSH

Level	Measured Parameter	Units	Maximum Crush	Above Ground
Level 1	Sill Top Height	mm	112	225
Level 2	Occupant H-Point	mm	253	462
Level 3	Mid Door	mm	260	595
Level 4	Window Sill	mm	195	877
Level 5	Window Top	mm	33	1228
Level 3	Maximum Penetration	mm	260	595

INSTRUMENTATION

Driver SID Accelerometers	8
Passenger SID Accelerometers	8
Vehicle Structure Accelerometers	20
MDB Accelerometers	5
Total	39

DATA SHEET NO. 3**MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS**

Test Vehicle: 2003/Hyundai/Tiburon/2 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
 Test Date: 4/9/02

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1252
Overall Length Including Honeycomb Face	4115
Wheel base of Framework Carriage	2590
C.G. Location aft of Front Axle	1127

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	395.1	293.8	
Right	kg	385.7	287.4	
Ratio	%	57.3	42.7	
Totals	kg	780.8	581.2	1362.0

SPEED AND IMPACT ANGLE DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	52.1 to 53.7	52.6
Trap No. 2 Velocity (Redundant)	km/h	52.1 to 53.7	52.6
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90.2

MAXIMUM STATIC CRUSH OF HONEYCOMB FACE

Vertical Location			From Centerline		Max. Crush
Row	Description	Height	Distance	Direction	
A	Center of Bumper (mm)	432	700	Left	107
B	Top of Bumper (mm)	533	800	Left	63
C	Mid Level (mm)	686	800	Left	127
D	Top of Stack (mm)	813	800	Left	149

MDB INSTRUMENTATION AND CAMERAS

Accelerometers	5
Contact Switches	2
High Speed Cameras	2

DATA SHEET NO. 4
POST TEST OBSERVATIONS

Test Vehicle: 2003/Hyundai/Tiburon/2 Door
Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
Test Date: 4/9/02

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat SID	Rear Seat SID
Dummy Type / Serial No.	SID / 036	SID / 037
Head Contact	Side header, airbag, headrest	Head removed
Upper Torso Contact	Airbag	Door trim above armrest
Lower Torso Contact	Armrest	Armrest
Left Knee Contact	Door trim below armrest	Door trim panel
Right Knee Contact	Left knee	Left knee

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Left Side Door Opening	Remained latched	Not applicable
Right Side Door Opening	Remained latched	Not applicable
Seat Movement	0	0
Seat Back Failure	None	None

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No failures
Sill Separation	None
Windshield Damage	Broke
Window Damage	Left front window broke
Other Notable Effects	Fuel filler door opened, body separation along the rear roofline near the hatch (see photo A-51)

AIRBAG DEPLOYMENT

	Driver	Front Passenger	Rear Passenger
Front	No	No	
Side	Yes	No	

MDB LEFT EDGE IMPACT POINT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset	Mm	+/- 50	6 rearward
Vertical Offset	Mm	+/-20	5 up

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 5

SID INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2003/Hyundai/Tiburon/2 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
 Test Date: 4/9/02

THORAX AND PELVIS PEAK ACCELERATIONS (FIR 100 Filtered)

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Upper Rib (LUR)	Y	G's	54.9	40	11.1	23	46.0	54	5.3	117
Upper Rib (LUR)	Y	G's	54.2	40	10.7	23	45.2	54	5.2	117
Lower Rib (LLR)	Y	G's	50.6	41	5.8	106	60.0	45	10.5	98
Lower Rib (LLR) (R)	Y	G's	50.9	41	6.0	106	60.2	45	10.5	98
Lower Spine (T ₁₂)	Y	G's	39.3	40	6.3	83	56.6	49	5.7	84
Lower Spine (T ₁₂)	Y	G's	39.5	40	6.5	83	56.0	49	5.4	84
Pelvis (PEV)	Y	G's	69.4	30	6.3	56	54.5	43	4.3	120
Pelvis (PEV) (R)	Y	G's	68.0	30	5.6	56	55.0	43	4.3	119

THORACIC TRAUMA INDEX (TTI) AND PELVIC ACCELERATION (FIR 100 Filtered)

Location	Driver				Passenger			
	LUR	T ₁₂	TTI(g)	PEV(g)	LLR	T ₁₂	TTI(g)	PEV(g)
Rib, Spine, and Pelvis	54.9	39.3	47	69.4	60.0	56.6	58	54.5
Rib, Spine, and Pelvis (R)	54.2	39.5	47	68.0	60.2	56.0	58	55.0

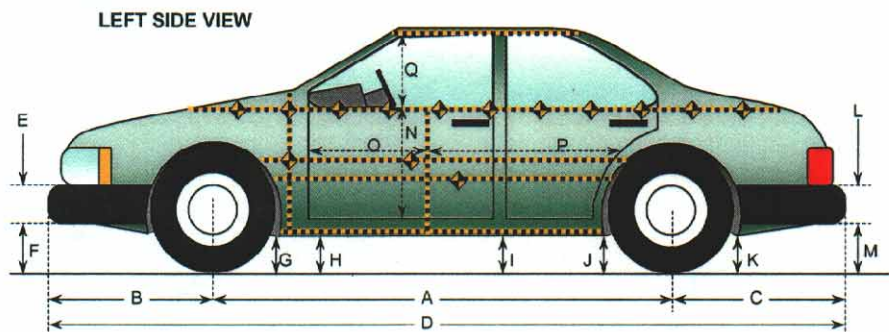
Positive Acceleration Polarities: Longitudinal (X) = Forward
 (Conforms to SAE J211) Lateral (Y) = Right
 Vertical (Z) = Down

DATA SHEET NO. 6

VEHICLE PRE-TEST AND POST-TEST MEASUREMENTS

Test Vehicle: 2003/Hyundai/Tiburon/2 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
 Test Date: 4/9/02



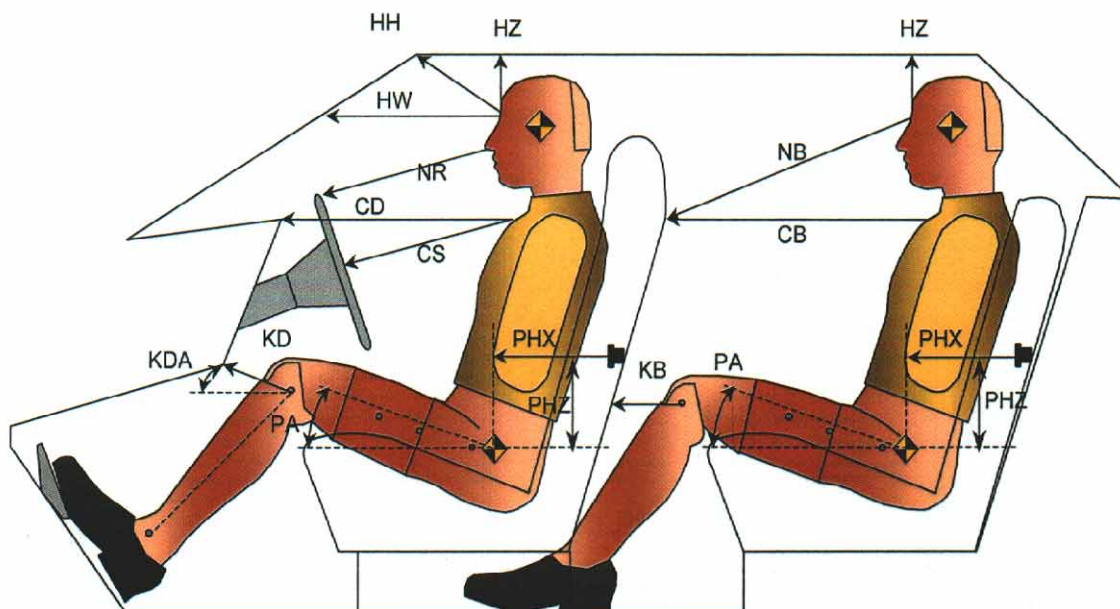
All Measurements in mm

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2536	2523	-13
B	Front Axle to FSOV	980	947	-33
C	Rear Axle to RSOV	840	873	33
D	Total Length at Centerline	4356	4343	-13
E	Front Bumper Thickness	120	120	0
F	Front Bumper Bottom to Ground	416	419	3
G	Sill Height at Front Wheel Well	147	156	9
H	Sill Height at Front Door Leading Edge	147	158	11
I	Sill Height at "B" Pillar	138	161	23
J1	Sill Height at Rear Wheel Well	137	146	9
J2	Pinch Weld Height at Rear Wheel Well	140	157	17
K	Sill Height Aft of Rear Wheel Well	175	168	-7
L	Rear Bumper Thickness	120	120	0
M	Rear Bumper Bottom to Ground	364	494	130
N	Sill Height to Window Bottom Sill	672	625	-47
O	Front Door Leading Edge to Impact CL	685	674	-11
P	Rear Door Trailing Edge to Impact CL	630	629	-1
Q	Front Window Opening	340	314	-26
R	Right Side Length	3645	3647	2
S	Left Side Length	3645	3590	-55
T	Vehicle Width at "B" Post	1700	1507	-193

DATA SHEET NO. 7
SID LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2003/Hyundai/Tiburon/2 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
 Test Date: 4/9/02



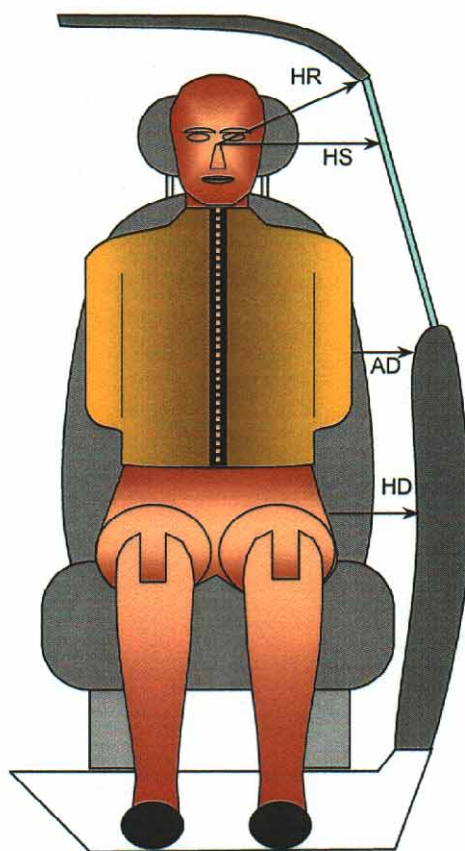
Driver Code	Pass. Code	Measurement Description	Driver 36		Passenger 37	
			Length(mm)	Angle(°)	Length(mm)	Angle(°)
HH		Head to Header	346			
HW		Head to Windshield	564			
HZ	HZ	Head to Roof	91		131	
NR	NB	Nose to Rim/Nose to Seatback	430		536	
CD	CB	Chest to Dash or Seatback	519		404	
CS		Chest to Steering Wheel	340			
KDL	KBL	Left Knee to Dash or Seatback	267	0	123	0
KDR	KBR	Right Knee to Dash or Seatback	272	0	104	0
PA	PA	Pelvic Angle		25.0		35.7
PHX	PHX	H-Point to Striker (X-Axis)	445		376	
PHZ	PHZ	H-Point to Striker (Z-Axis)	228		174	

* Rear passenger head removed for dummy placement, HZ and NR measurements made to top of the neck.

DATA SHEET NO. 8
SID LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2003/Hyundai/Tiburon/2 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
 Test Date: 4/9/02



FRONT VIEW OF DUMMY

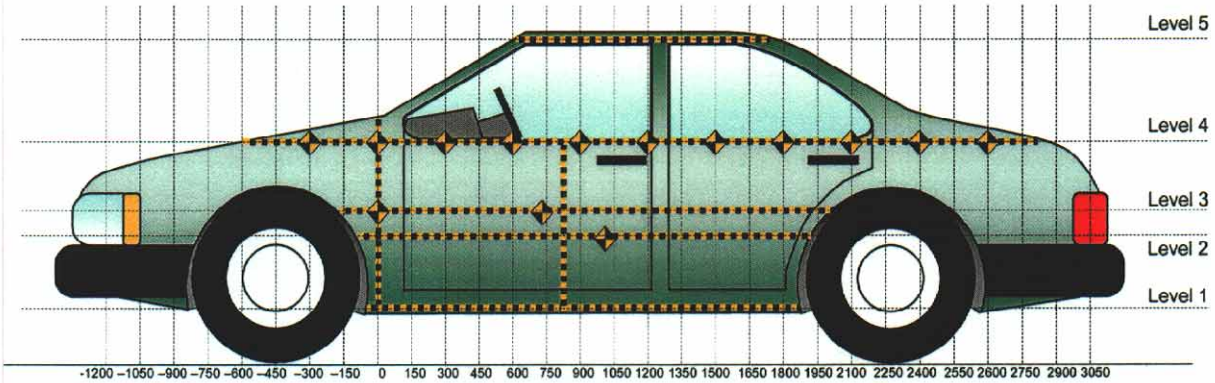
Code	Measurement Description	Units	Driver 36	Passenger 37
HR	Head to Side Header	mm	181	187
HS	Head to Side Window	mm	293	215
AD	Arm to Door	mm	96	48
HD	H-Point to Door	mm	177	99

- Rear passenger head removed for dummy placement, HR and HS measurements taken from top of neck.

DATA SHEET NO. 9
VEHICLE SIDE MEASUREMENTS

Test Vehicle: 2003/Hyundai/Tiburon/2 Door
Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
Test Date: 4/9/02



All Measurements Shown in mm

LEFT SIDE VIEW

Measurements are taken with vehicle in the as tested condition.
Measurements along the vertical 800 mm.
All measurements below in mm.

Level	Measurement Description	Height Above Ground
5	Window	1228
4	Window Sill	877
3	Mid Door	595
2	Occupant H-Point	462
1	Sill Top	225

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2003/Hyundai/Tiburon/2 Door
Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
Test Date: 4/9/02

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750				341					341					0	
-600				327					329					2	
-450				318					324					6	
-300				306					320					14	
-150				302					320					18	
0		224	215	298			350	328	322			126	113	24	
150	257	239	232	294		307	420	378	326		50	181	146	32	
300	259	239	232	289		346	479	422	362		87	240	190	73	
450	261	241	232	285		354	480	430	390		93	239	198	105	
600	260	244	232	280		359	483	437	414		99	239	205	134	
750	260	248	233	282	500	365	485	440	420	513	105	237	207	138	13
900	260	251	234	282	501	369	488	448	423	514	109	237	214	141	13
1050	260	254	236	286	502	372	492	454	431	520	112	238	218	145	18
1200	261	254	238	288	505	371	499	461	443	529	110	245	223	155	24
1350	262	255	240	292	506	366	501	455	457	539	104	246	215	165	33
1500	264	254	240	292	508	355	504	478	487	531	91	250	238	195	23
1650	265	250	240	297	514	342	503	500	458	526	77	253	260	161	12
1800	265	242	235	299		327	443	466	394		62	201	231	95	
1950			225	300				365	363				140	63	
2100				303					345					42	
2250				308					333					25	
2400				319					329					10	
2550				335					335					0	
2700				359					347					-12	
2850															
3000															

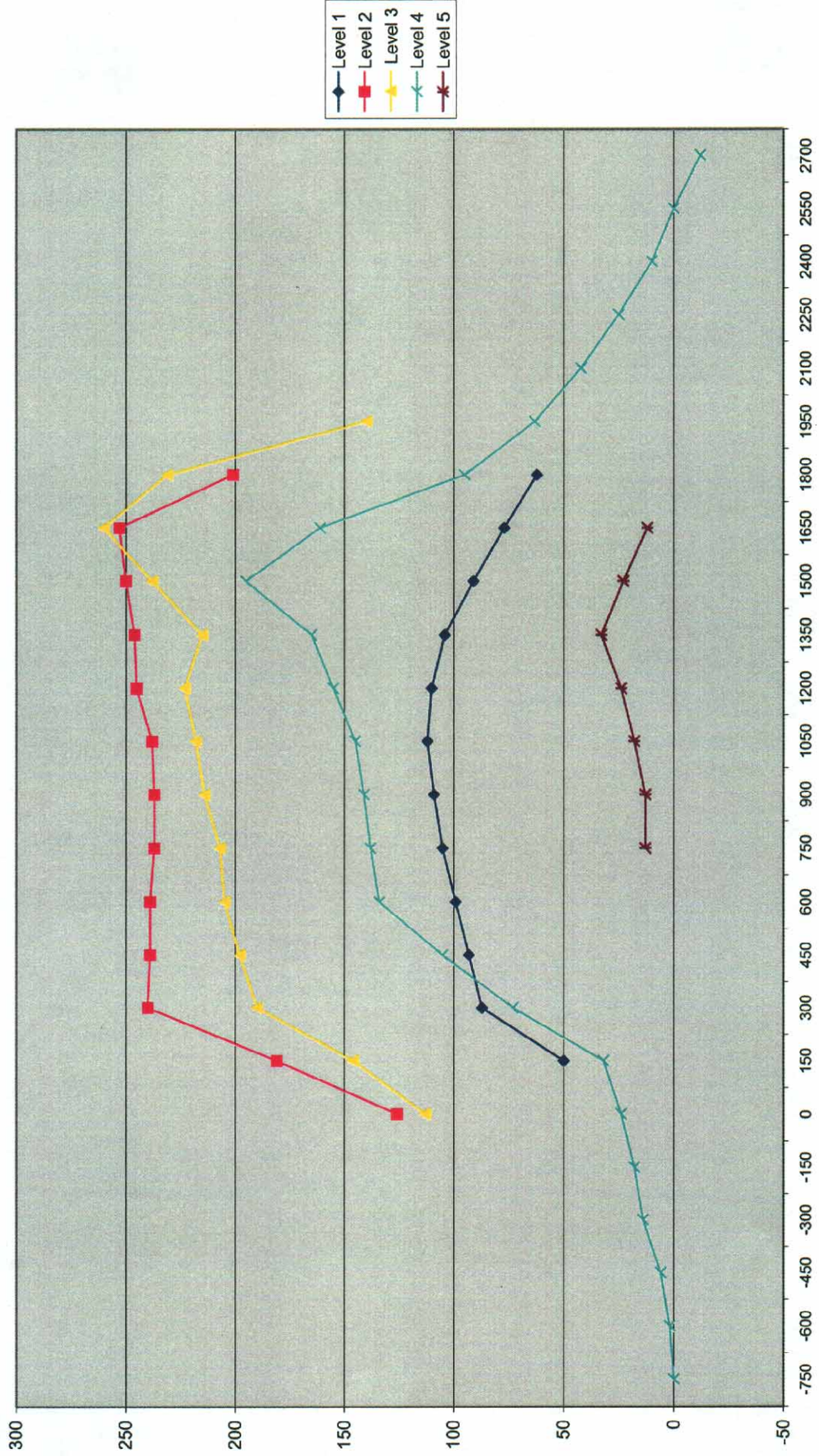
Reference plane is parallel to test vehicle longitudinal centerline.

Given dimensions = Reference plane to car body

DATA SHEET NO. 10... (continued)

VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2003/Hyundai/Tiburon/2 Door NHTSA No. C30500
 Test Program: FMVSS 214 Indicant Side Impact Test Date: 4/9/02

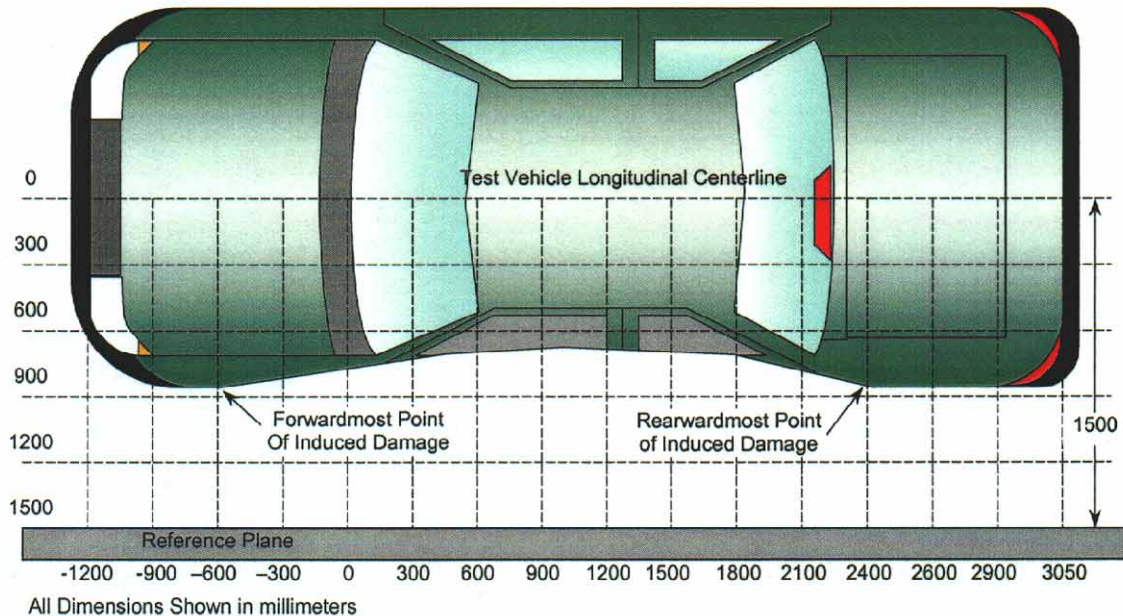


DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2003/Hyundai/Tiburon/2 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
 Test Date: 4/9/02



TOP VIEW

Damage Profile Distances

DPD	Distance from Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max Static Crush (mm)
1	2550 mm	4	335	335	0
2	1595 mm	2	252	502	250
3	1005 mm	2	253	489	236
4	405 mm	2	240	481	241
5	-165 mm	4	303	318	15
6	-750 mm	4	341	341	0

Reference plane is parallel to test vehicle longitudinal centerline.

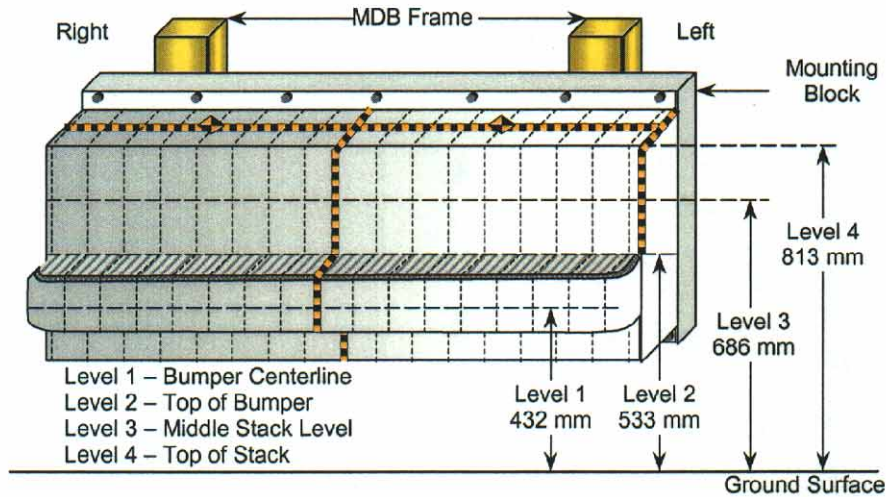
Given dimensions = Reference plane to car body.

DATA SHEET NO. 12

DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2003/Hyundai/Tiburon/2 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
 Test Date: 4/9/02



DEFORMABLE BARRIER STATIC CRUSH

Stack Level	Distance Right of Center								C _L	Distance Left of Center							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
1	95	88	84	79	78	73	72	72	71	68	69	73	72	78	92	107	106
2	51	44	44	42	39	36	34	32	30	32	32	32	33	37	43	50	63
3	10	-2	1	8	7	6	6	6	7	7	8	10	14	16	36	92	127
4	36	0	0	6	3	3	3	6	8	8	12	18	28	48	76	113	149

All Dimensions in mm

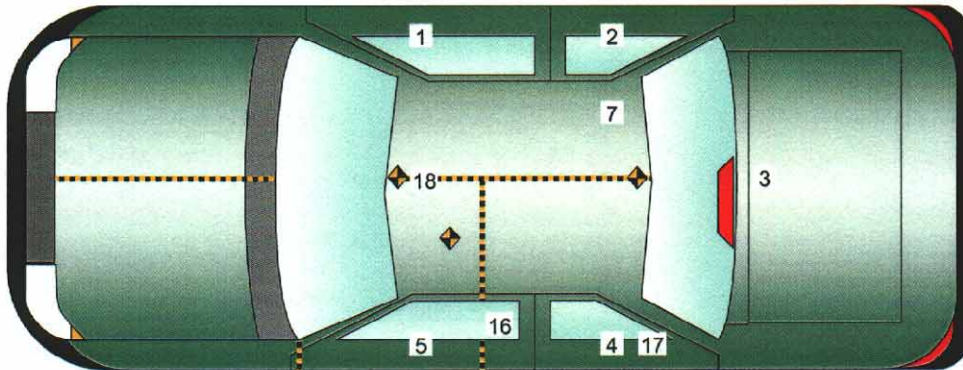
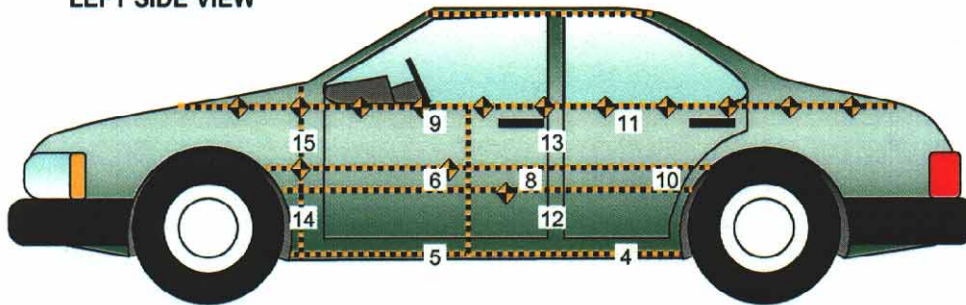
DATA SHEET NO. 13

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Test Vehicle: 2003/Hyundai/Tiburon/2 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
 Test Date: 4/9/02

LEFT SIDE VIEW



No.	Location
1	Right Sill at Front Seat
2	Right Sill at Rear Seat
3	Rear Floorpan Above Axle
4	Left Sill at Rear Door
5	Left Sill at Front Door
6	Left Front Door Centerline
7	Right Rear Occupant Compartment
8	Left Front Door Mid-Rear
9	Left Front Door Upper Centerline

No.	Location
10	Left Rear Door Mid-Rear
11	Left Rear Door Upper Centerline
12	Left Lower B-Post
13	Left Middle B-Post
14	Left Lower A-Post
15	Left Middle A-Post
16	Front Seat Track
17	Rear Seat Track or Structure
18	Vehicle CG

DATA SHEET NO. 13... (continued)

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2003/Hyundai/Tiburon/2 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
 Test Date: 4/9/02

VEHICLE ACCELEROMETER PEAK DATA AND PRE-TEST LOCATIONS

Loc. No.	Accelerometer Location	Measurements (mm)			Peak Values (G's)				
		X	Y	Z	Axis	Max	Time	Min	Time
1	Right Sill at Front Seat	2365	667	-212	X	3.2	53	5.4	17
					Y	18.7	40	2.3	74
					Z	3.9	16	4.9	27
					RES	18.9	40		
2	Right Sill at Rear Seat	1415	656	-215	X	5.6	41	3.1	17
					Y	22.2	39	4.0	84
					Z	4.6	43	4.5	31
					RES	23.3	39		
3	Rear Floorpan Above Axle	900	0	-520	X	2.5	55	10.4	24
					Y	26.8	38	2.8	78
					Z	6.4	43	8.4	14
					RES	26.9	38		
4	Left Sill at Rear Door	1417	-656	210	Y	35.3	23	9.2	31
5	Left Sill at Front Door	2367	-667	-182	Y	48.2	22	13.7	11
7	Rear Occupant Compartment	1650	-318	-445	Y	21.9	39	2.6	86
12	B-Post Lower	1662	-655	306	Y	66.3	17	19.0	30
13	B-Post Middle	1622	-645	846	Y	96.2	8	**	**
14	A-Post Lower	2795	-645	-300	Y	47.0	9	16.6	19
15	A-Post Middle	2860	-770	-853	Y	49.1	13	10.1	18
16	Front Seat Track	1987	-541	-272	Y	73.0	15	16.6	28
18	Vehicle CG	2444	30	-400	X	3.3	23	4.9	13
					Y	19.6	16	2.3	30
					Z	7.5	54	9.8	24
					RES	21.1	23		

Reference Points

X - Test Vehicle Rear Bumper
 Y - Test Vehicle Centerline
 Z - Ground Plane

** No valid data after 28 msec

DATA SHEET NO. 14

MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

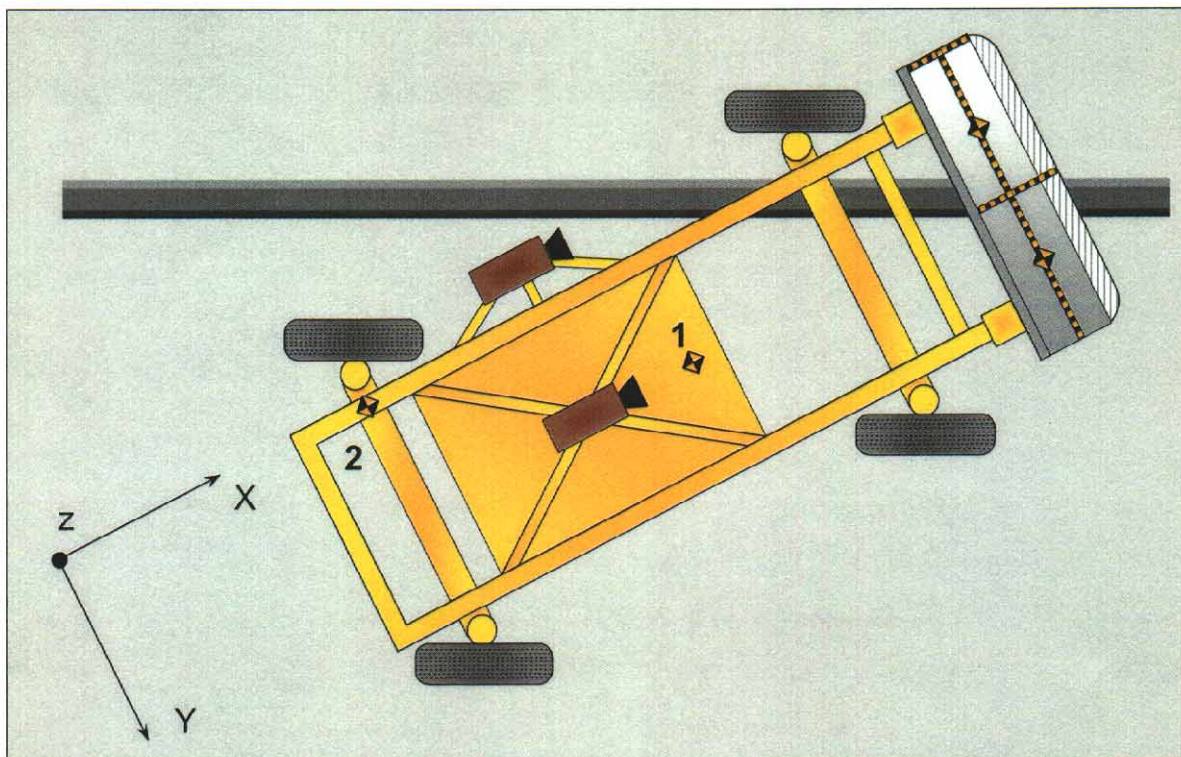
Test Vehicle: 2003/Hyundai/Tiburon/2 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
 Test Date: 4/9/02

MDB ACCELEROMETER PEAK DATA AND LOCATIONS

Loc. No.	Accelerometer Location	Measurement (mm)			Peak Values (G's)				
		X	Y	Z	Axis	Max	Time	Min	Time
1	MDB CG	-1092	0	-483	X	1.1	118	18.6	47
					Y	1.5	63	5.3	34
					Z	15.0	64	21.7	69
					RES	25.5	46		
2	MDB Rear	-2591	-625	-622	X	1.2	120	18.9	38
					Y	6.1	20	1.1	120

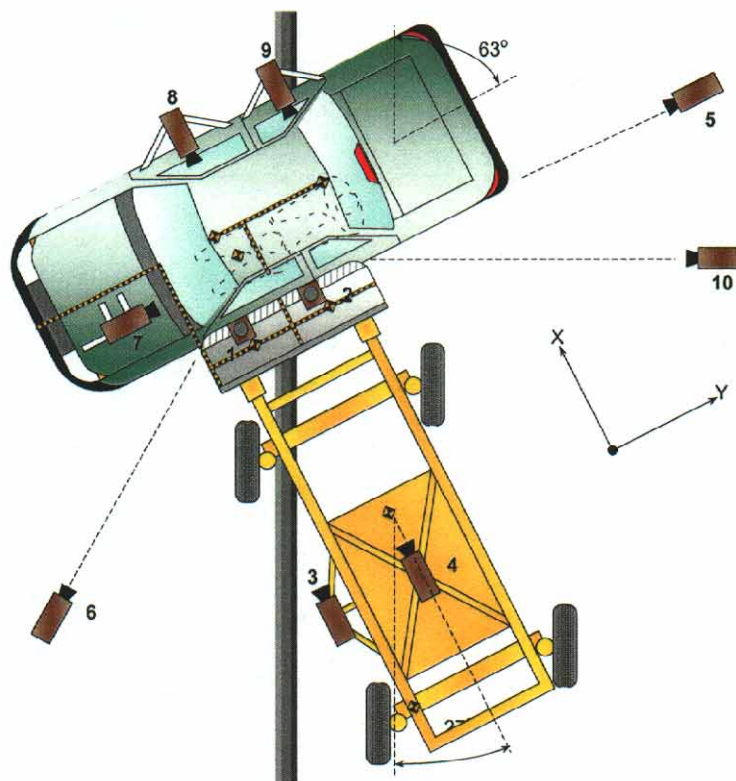
Reference Points: X - MDB Front Axle (+ forward)
 Y - MDB Centerline (+ right)
 Z - Ground Plane (+ down)



DATA SHEET NO. 15
HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2003/Hyundai/Tiburon/2 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
 Test Date: 4/9/02



No.	Camera View	Location (mm)			Lens (mm)	Film Speed (fps)
		X	Y	Z		
1	Overhead Overall	490	-760	-4950	8	1053
2	Overhead Close-up	-1440	0	-4950	13	1026
3	MDB Onboard, Impact Point Close-up				13	1042
4	MDB Onboard, Centerline of Impact				13	1020
5	Right Side, Ground Level, Overall	4721	-8850	-1835	25	833
6	Left Side, Ground Level, Overall	-1850	1780	-1720	13	943
7	Vehicle Onboard Front SID, Front				13	505
8	Vehicle Onboard Front SID, Side				13	505
9	Vehicle Onboard Rear SID, Side				13	503
10	Real Time Coverage					

Reference Points X - Impact Line (+ forward)
 Y - MDB Left Edge Impact Point (+ right)
 Z - Ground Plane (+ down)

DATA SHEET NO. 16

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Test Vehicle: 2003/Hyundai/Tiburon/2 Door
Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
Test Date: 4/9/02

Test Time: 12:30 PM

Temperature at Time of Impact: 20 C

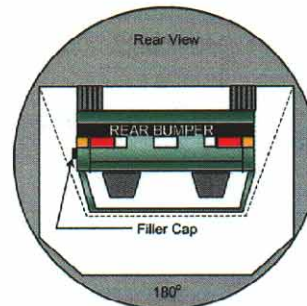
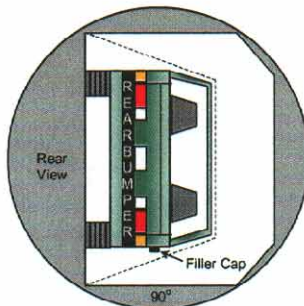
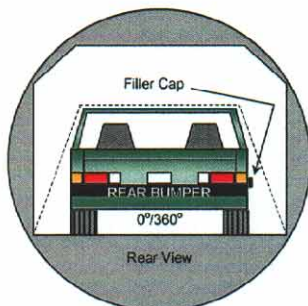
Stoddard Solvent Spillage Measurements

- A. From impact until vehicle motion ceases: 0
(Maximum Allowable = 1 ounce)
- B. For the 5 minute period after motion ceases: 0
(Maximum allowable = 5 ounces)
- C. For the following 25 minutes: 0
(Maximum allowable = 1 oz./minute)
- D. Spillage Details: None

DATA SHEET NO. 17
FMVSS 301 STATIC ROLLOVER DATA SHEET

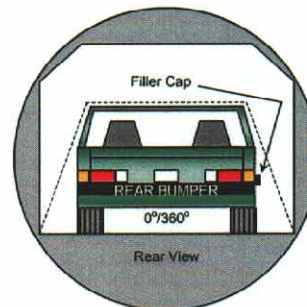
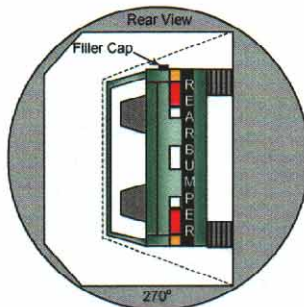
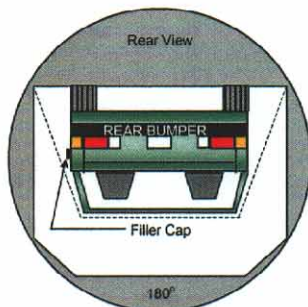
Test Vehicle: 2003/Hyundai/Tiburon/2 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C30500
 Test Date: 4/9/02



0° TO 90°

90° TO 180°



180° TO 270°

270° TO 360°

1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard Solvent Spillage locations:

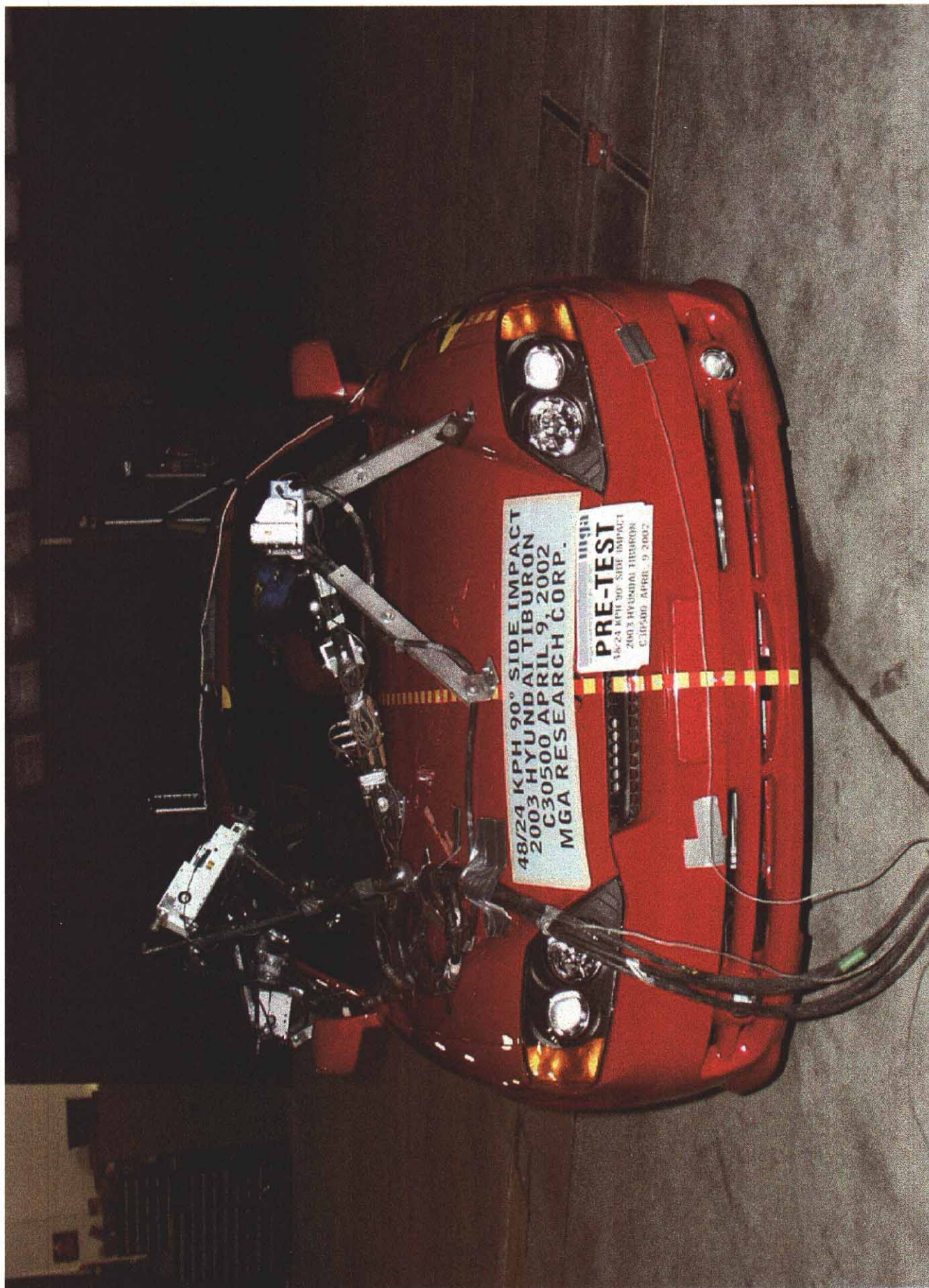
Rollover Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (oz.)
0° TO 90°	175	300	0
90° TO 180°	152	300	0
180° TO 270°	139	300	0
270° TO 360°	160	300	0

APPENDIX A
PHOTOGRAPHS

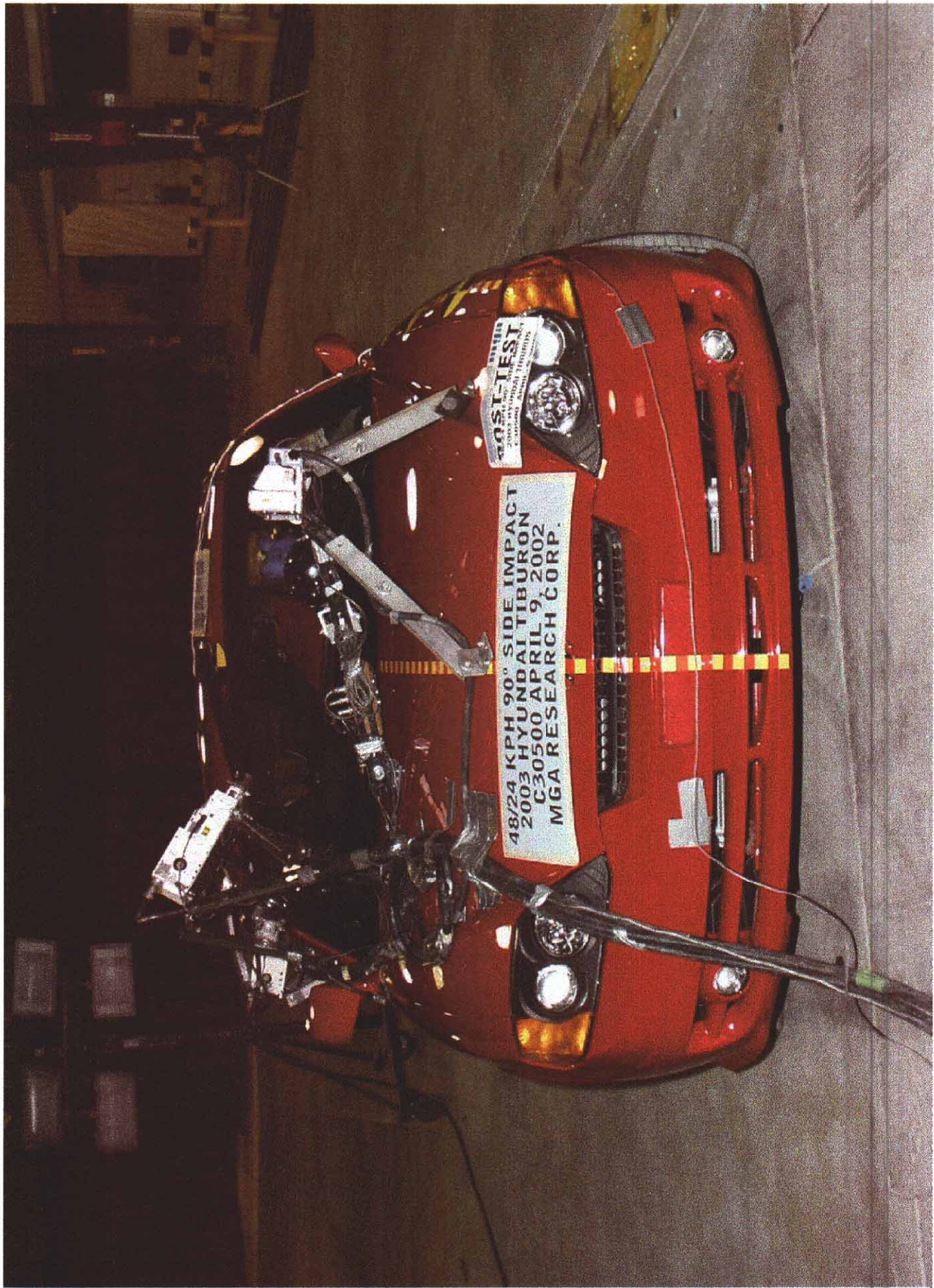
TABLE OF PHOTOGRAPHS

		<u>Page No.</u>
Photo No. A-1	Pre-Test Front View of Test Vehicle	A-1
Photo No. A-2	Post-Test Front View of Test Vehicle	A-2
Photo No. A-3	Pre-Test Rear View of Test Vehicle	A-3
Photo No. A-4	Post-Test Rear View of Test Vehicle	A-4
Photo No. A-5	Pre-Test Left Side View of Test Vehicle	A-5
Photo No. A-6	Post-Test Left Side View of Test Vehicle	A-6
Photo No. A-7	Pre-Test Left Rear Three-Quarter View of Test Vehicle	A-7
Photo No. A-8	Post-Test Left Rear Three-Quarter View of Test Vehicle	A-8
Photo No. A-9	Pre-Test Left Front Three-Quarter View of Test Vehicle	A-9
Photo No. A-10	Post-Test Left Front Three-Quarter View of Test Vehicle	A-10
Photo No. A-11	Pre-Test Right Rear Three-Quarter View of Test Vehicle	A-11
Photo No. A-12	Post-Test Right Rear Three-Quarter View of Test Vehicle	A-12
Photo No. A-13	Pre-Test Right Front Three-Quarter View of Test Vehicle	A-13
Photo No. A-14	Post-Test Right Front Three-Quarter View of Test Vehicle	A-14
Photo No. A-15	Pre-Test MDB Positioned Against Vehicle (left side)	A-15
Photo No. A-16	Pre-Test MDB Positioned Against Vehicle (right side)	A-16
Photo No. A-17	Pre-Test MDB Positioned Against Vehicle Overhead View	A-17
Photo No. A-18	Post-Test MDB and Vehicle (left side)	A-18
Photo No. A-19	Post-Test MDB and Vehicle (right side)	A-19
Photo No. A-20	Post-Test MDB and Vehicle Overhead View	A-20
Photo No. A-21	Pre-Test MDB Top View	A-21
Photo No. A-22	Post-Test MDB Top View	A-22
Photo No. A-23	Pre-Test MDB Front View	A-23
Photo No. A-24	Post-Test MDB Front View	A-24
Photo No. A-25	Pre-Test MDB Right Side View	A-25
Photo No. A-26	Post-Test MDB Right Side View	A-26
Photo No. A-27	Pre-Test MDB Left Side View	A-27
Photo No. A-28	Post-Test MDB Left Side View	A-28
Photo No. A-29	Pre-Test Driver Dummy Right Side View	A-29
Photo No. A-30	Post-Test Driver Dummy Right Side View	A-30

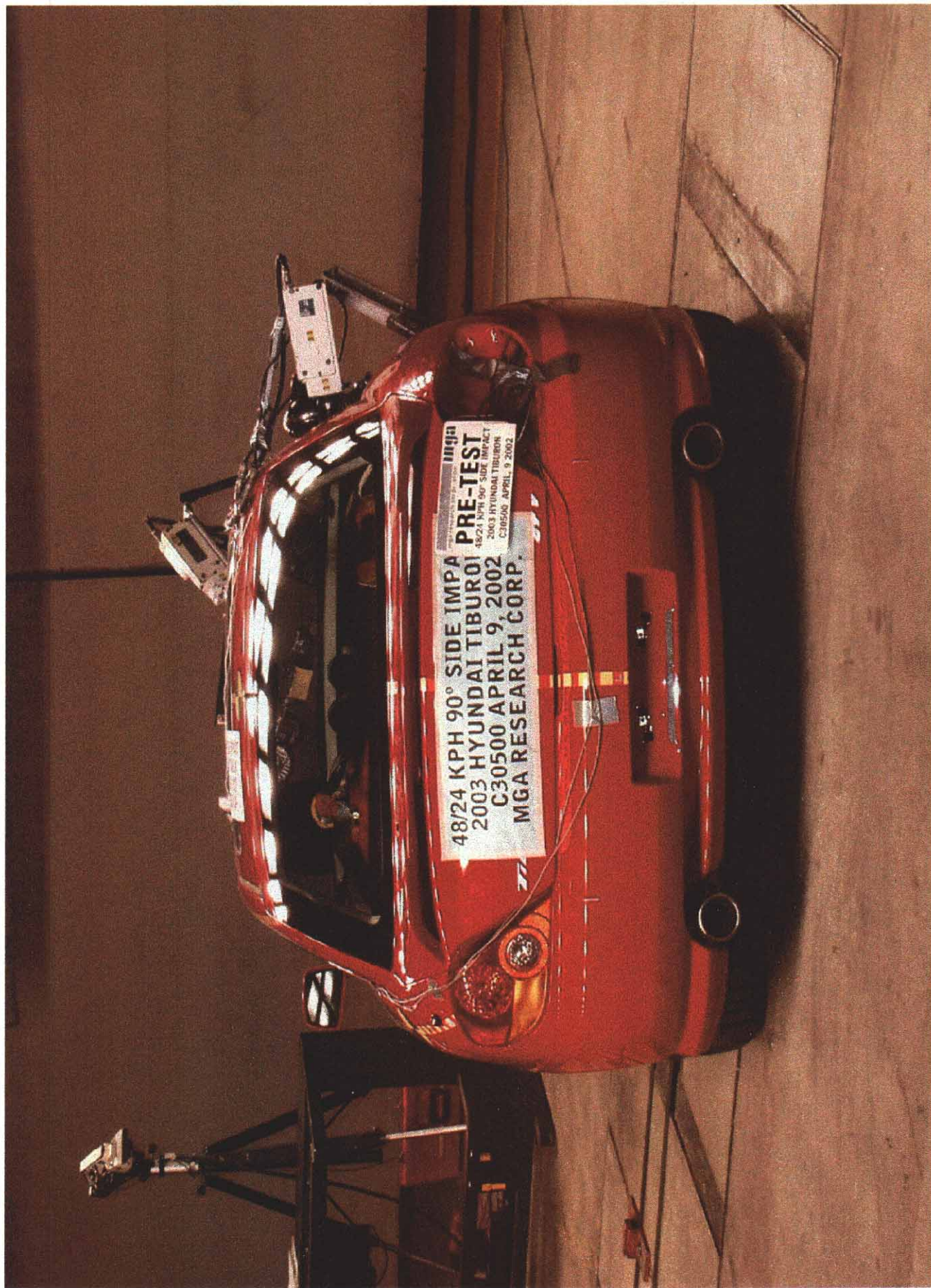
Photo No. A-31	Pre-Test Driver Dummy Left Side View	A-31
Photo No. A-32	Post-Test Driver Dummy Left Side View	A-32
Photo No. A-33	Pre-Test Driver Dummy Left Side View (Door Open)	A-33
Photo No. A-34	Pre-Test Driver Dummy Shoulder and Door Top View	A-34
Photo No. A-35	Post-Test Driver Dummy Shoulder and Door Top View	A-35
Photo No. A-36	Post-Test Driver Dummy Contact	A-36
Photo No. A-37	Post-Test Driver Dummy Contact	A-37
Photo No. A-38	Post-Test Driver Dummy Head Contact	A-38
Photo No. A-39	Pre-Test Passenger Dummy Right Side View	A-39
Photo No. A-40	Post-Test Passenger Dummy Right Side View	A-40
Photo No. A-41	Pre-Test Passenger Dummy Left Side View	A-41
Photo No. A-42	Post-Test Passenger Dummy Left Side View	A-42
Photo No. A-43	Pre-Test Passenger Dummy Shoulder and Door Top View	A-43
Photo No. A-44	Post-Test Passenger Dummy Shoulder and Door Top View	A-44
Photo No. A-45	Post-Test Passenger Dummy Contact	A-45
Photo No. A-46	Pre-Test Fuel Filler Cap	A-46
Photo No. A-47	Post-Test Fuel Filler Cap	A-47
Photo No. A-48	Pre-Test Impact Point on Vehicle	A-48
Photo No. A-49	Post-Test Impact Point on Vehicle	A-49
Photo No. A-50	Impact	A-50
Photo No. A-51	Roof Separation View of Test Vehicle	A-51
Photo No. A-52	Vehicle Certification Label	A-52
Photo No. A-53	Tire Placard	A-53
Photo No. A-54	Rollover 90 degree	A-54
Photo No. A-55	Rollover 180 degree	A-55
Photo No. A-56	Rollover 270 degree	A-56
Photo No. A-57	Rollover 360 degree	A-57
Photo No. A-58	Left Front Attitude Point	A-58
Photo No. A-59	Right Front Attitude Point	A-59
Photo No. A-60	Left Rear Attitude Point	A-60
Photo No. A-61	Right Rear Attitude Point	A-61



Pre-Test Front View of Test Vehicle



Post-Test Front View of Test Vehicle



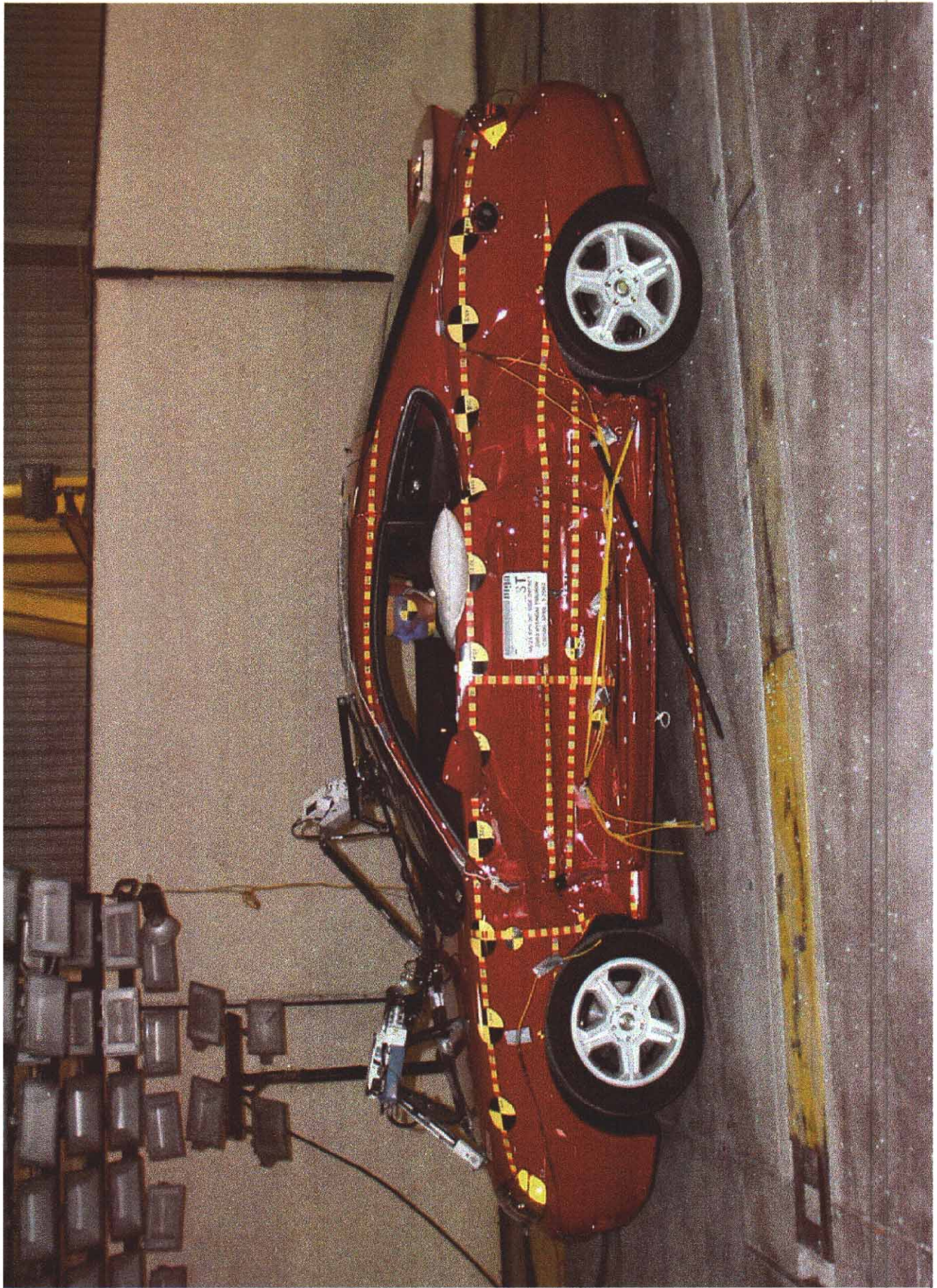
Pre-Test Rear View of Test Vehicle



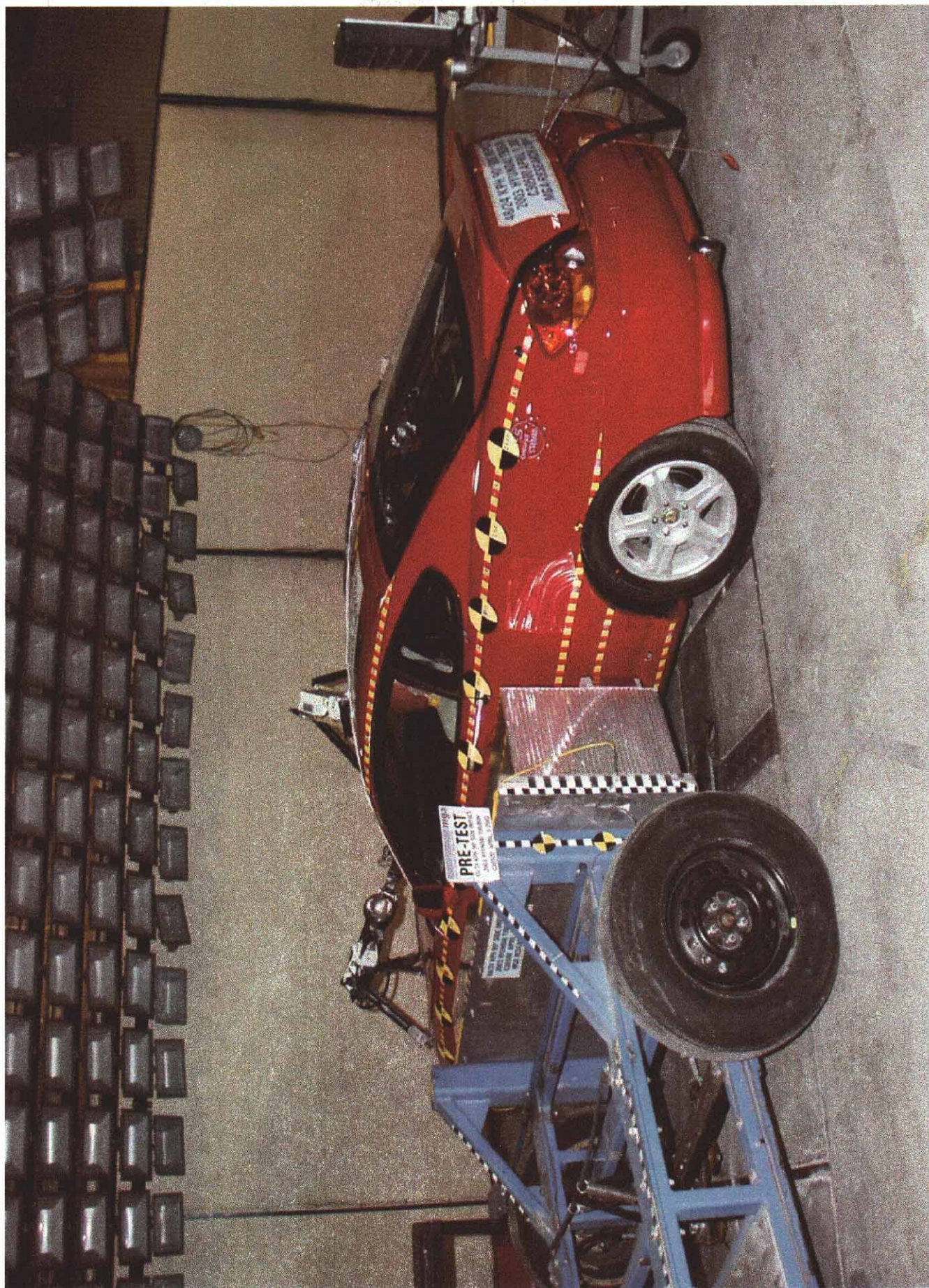
Post-Test Rear View of Test Vehicle



Pre-Test Left Side View of Test Vehicle



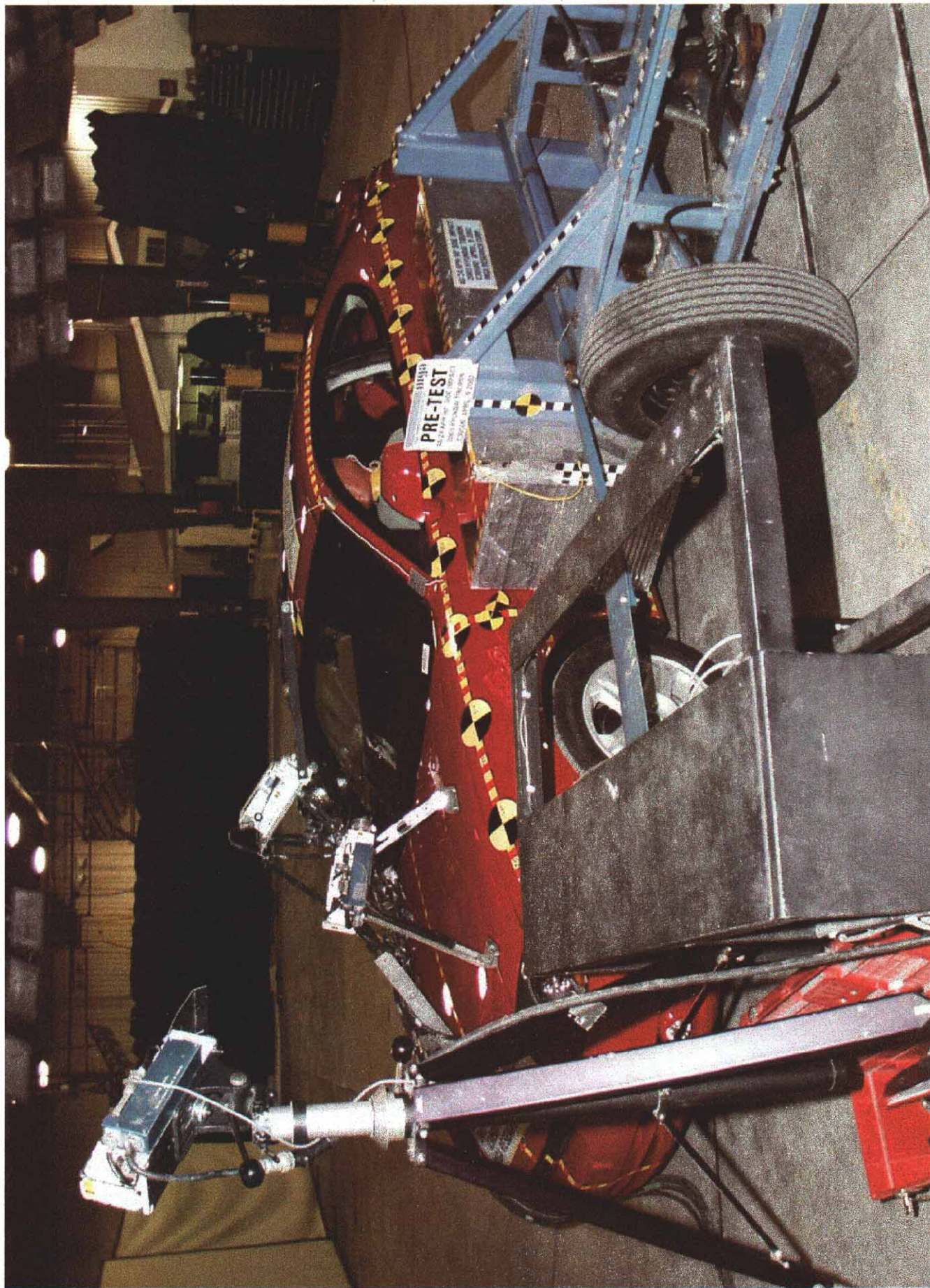
Post-Test Left Side View of Test Vehicle



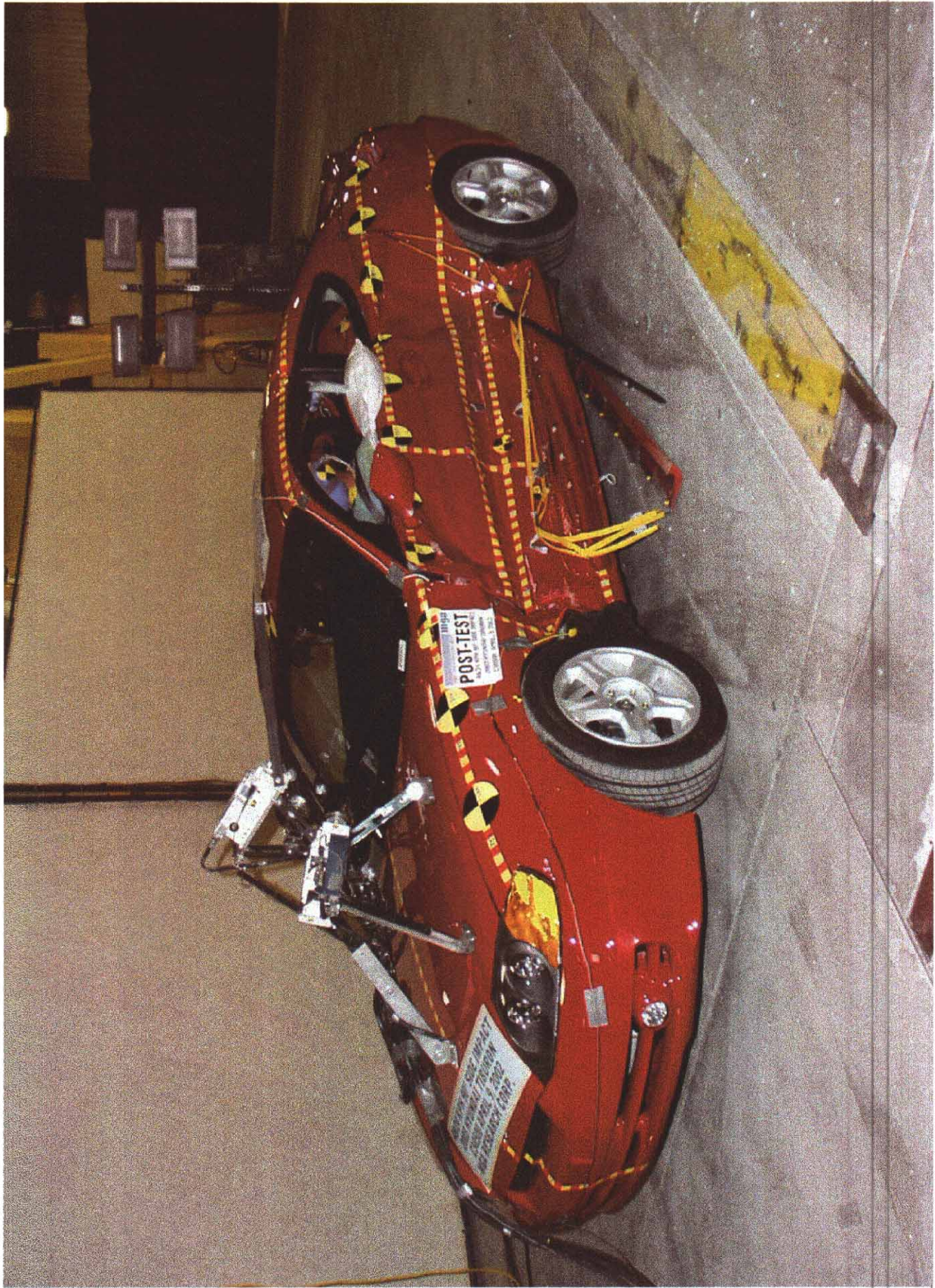
Pre-Test Left Rear Three-Quarter View of Test Vehicle



Post-Test Left Rear Three-Quarter View of Test Vehicle



Pre-Test Left Front Three-Quarter View of Test Vehicle



Post-Test Left Front Three-Quarter View of Test Vehicle



Pre-Test Right Rear Three-Quarter View of Test Vehicle



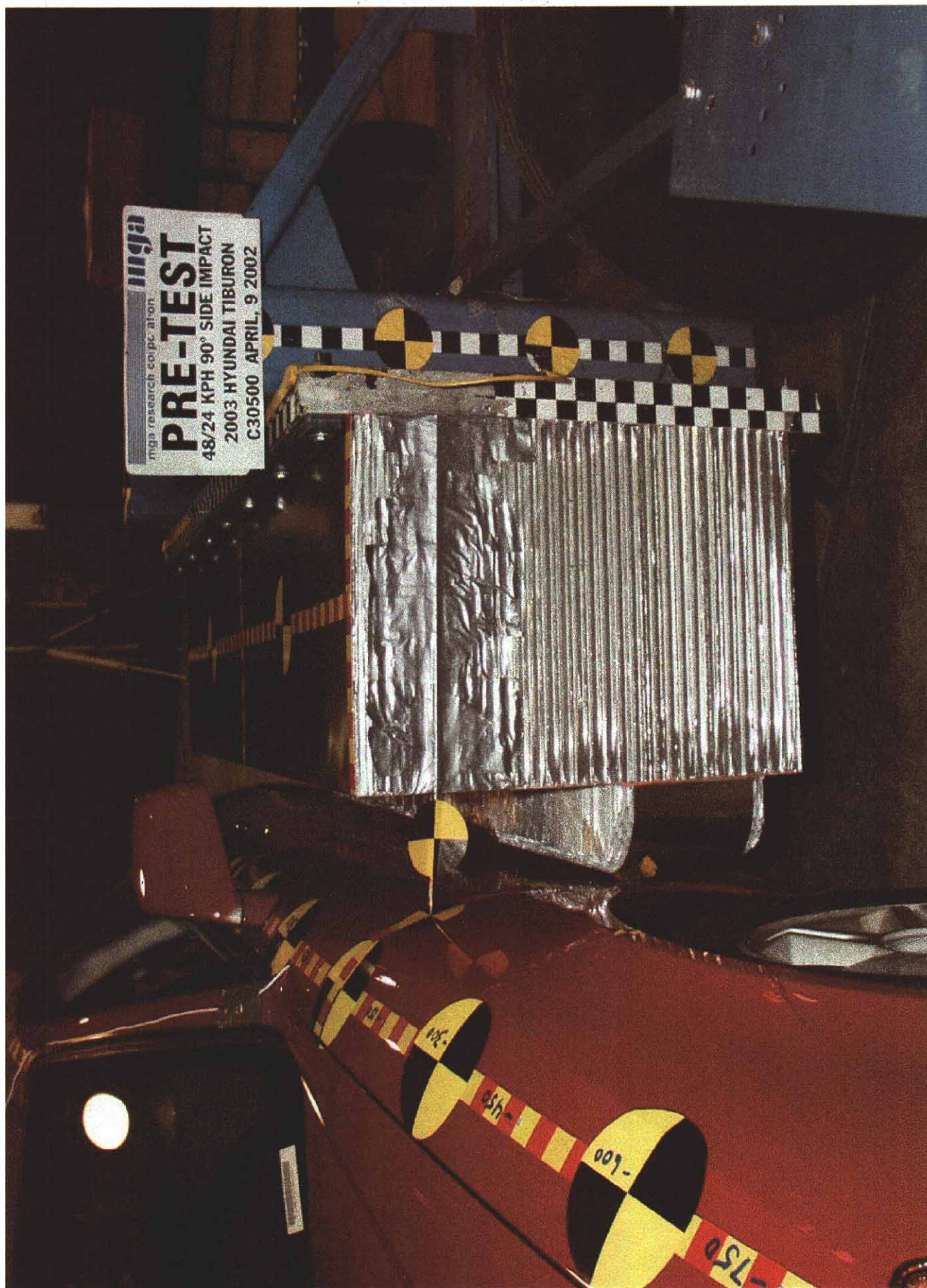
Post-Test Right Rear Three-Quarter View of Test Vehicle



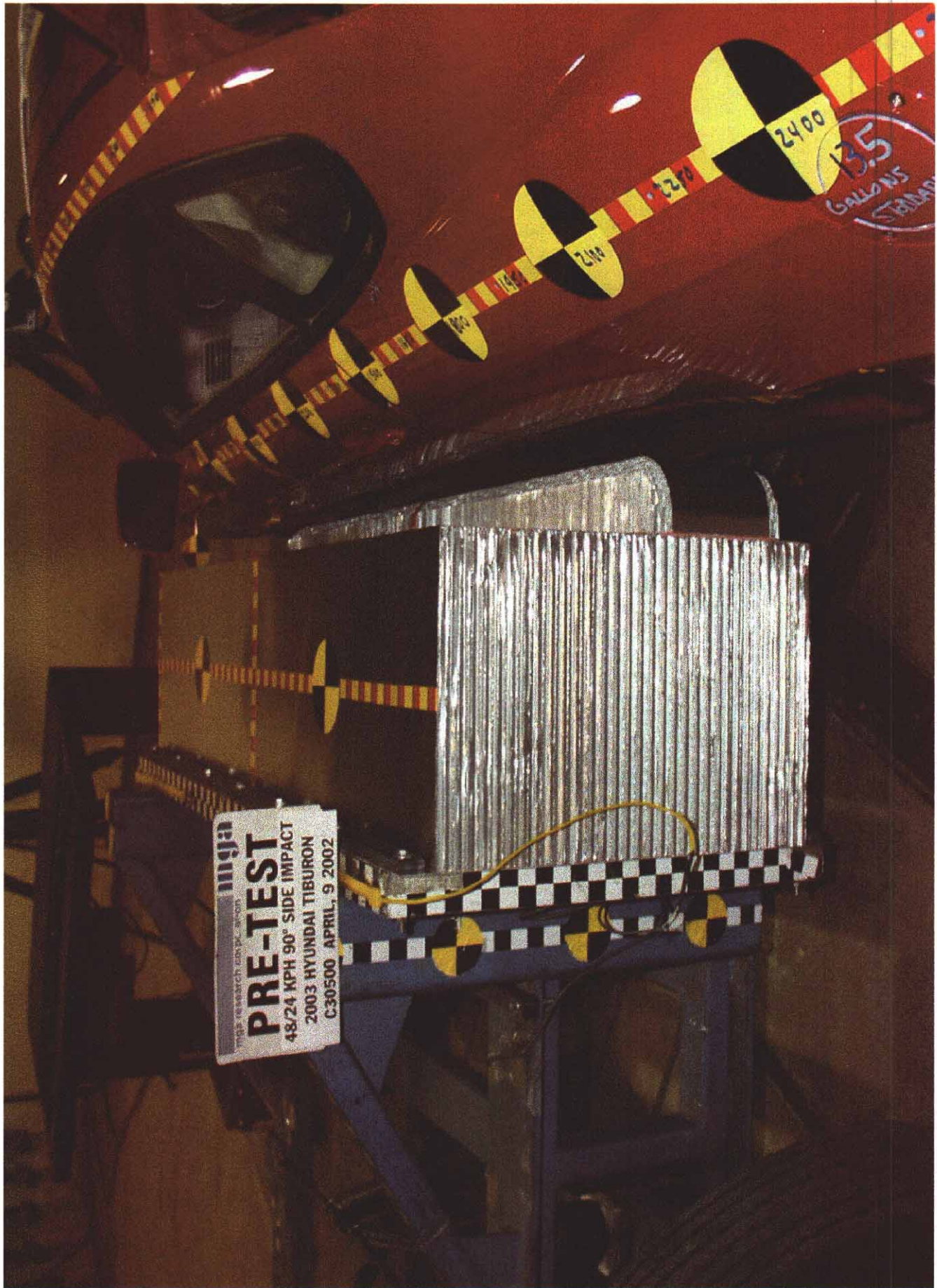
Pre-Test Right Front Three-Quarter View of Test Vehicle



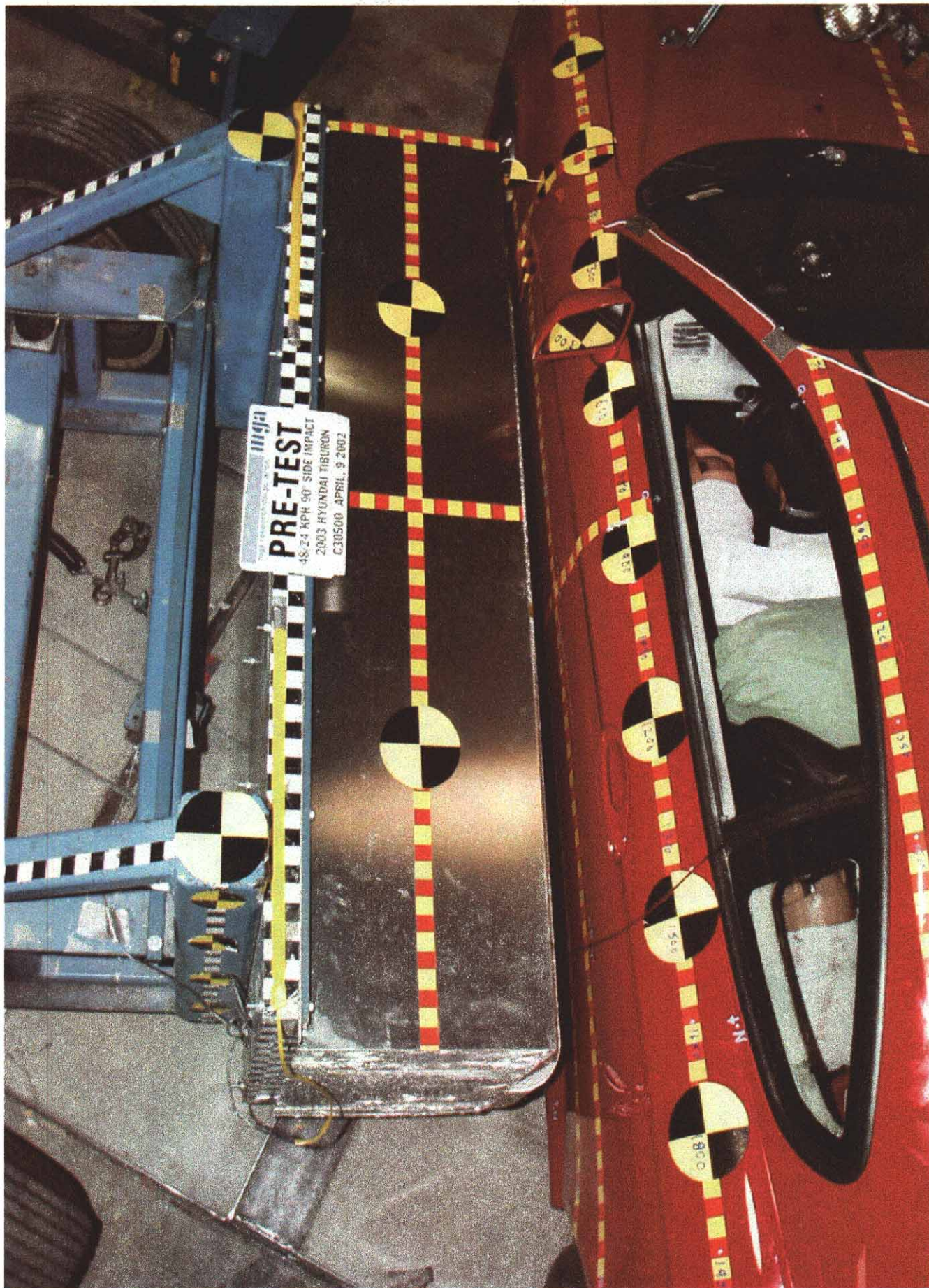
Post-Test Right Front Three-Quarter View of Test Vehicle



Pre-Test MDB Positioned Against Vehicle (left side)



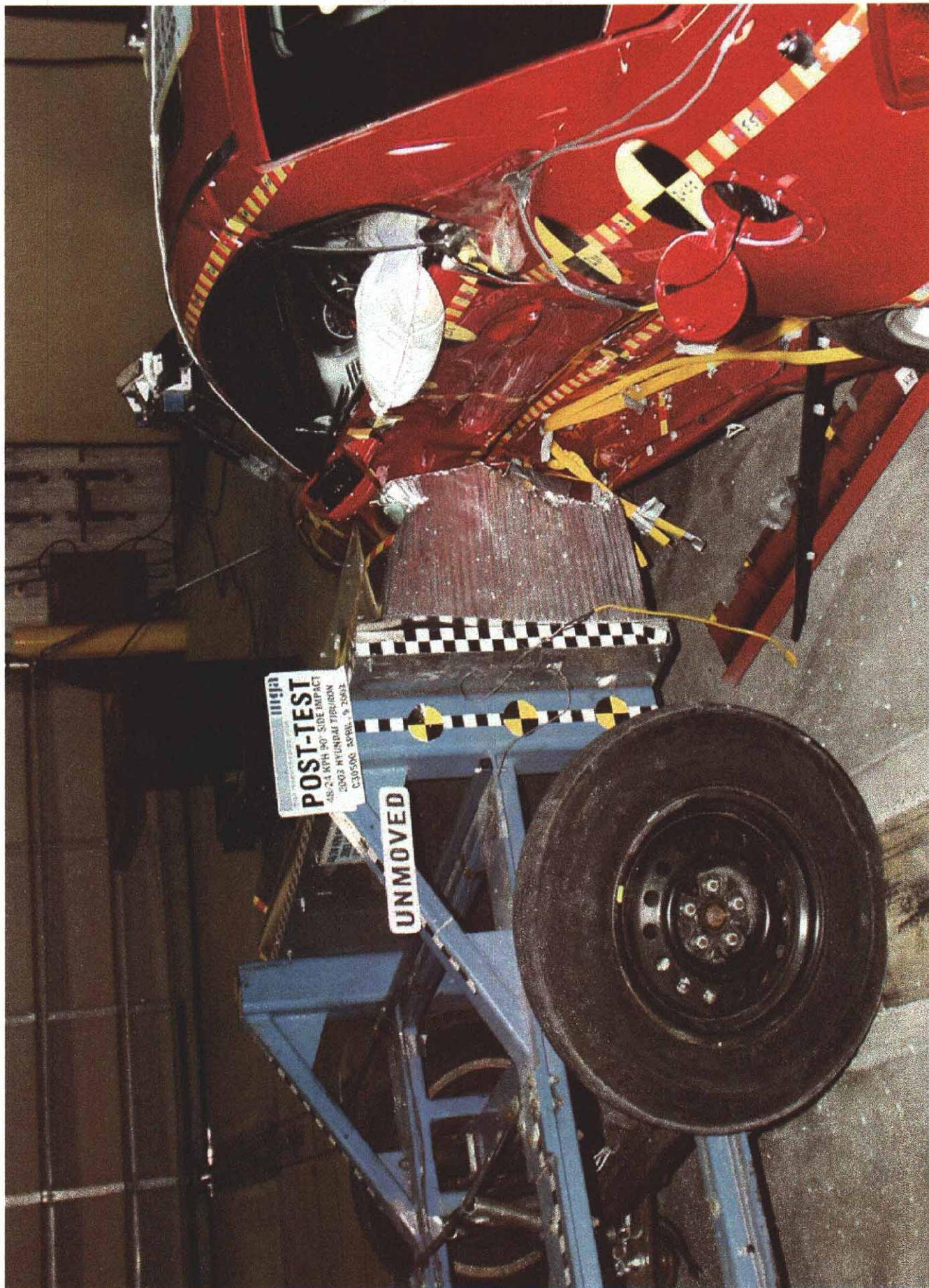
Pre-Test MDB Positioned Against Vehicle (right side)



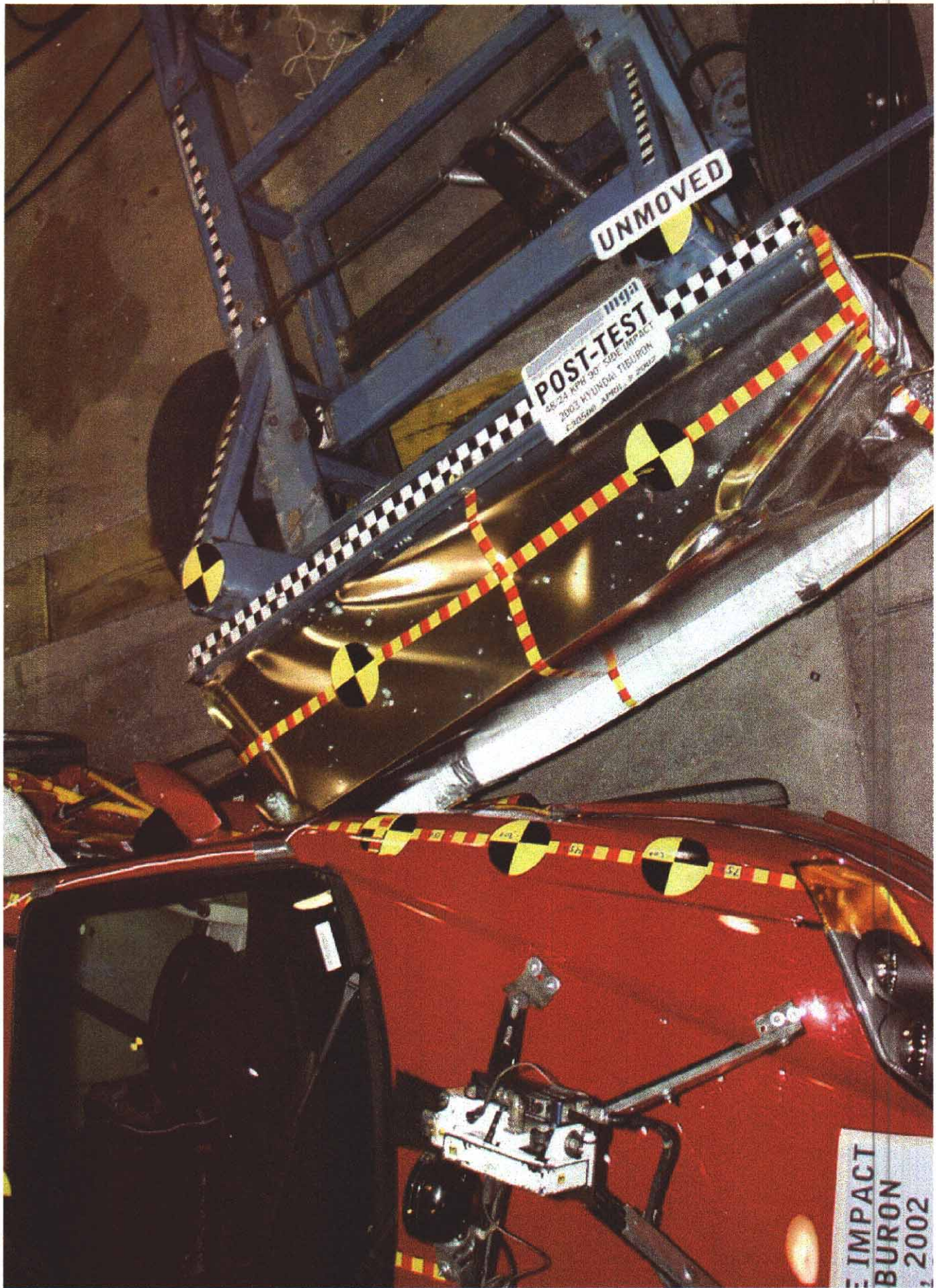
Pre-Test MDB Positioned Against Vehicle Overhead View



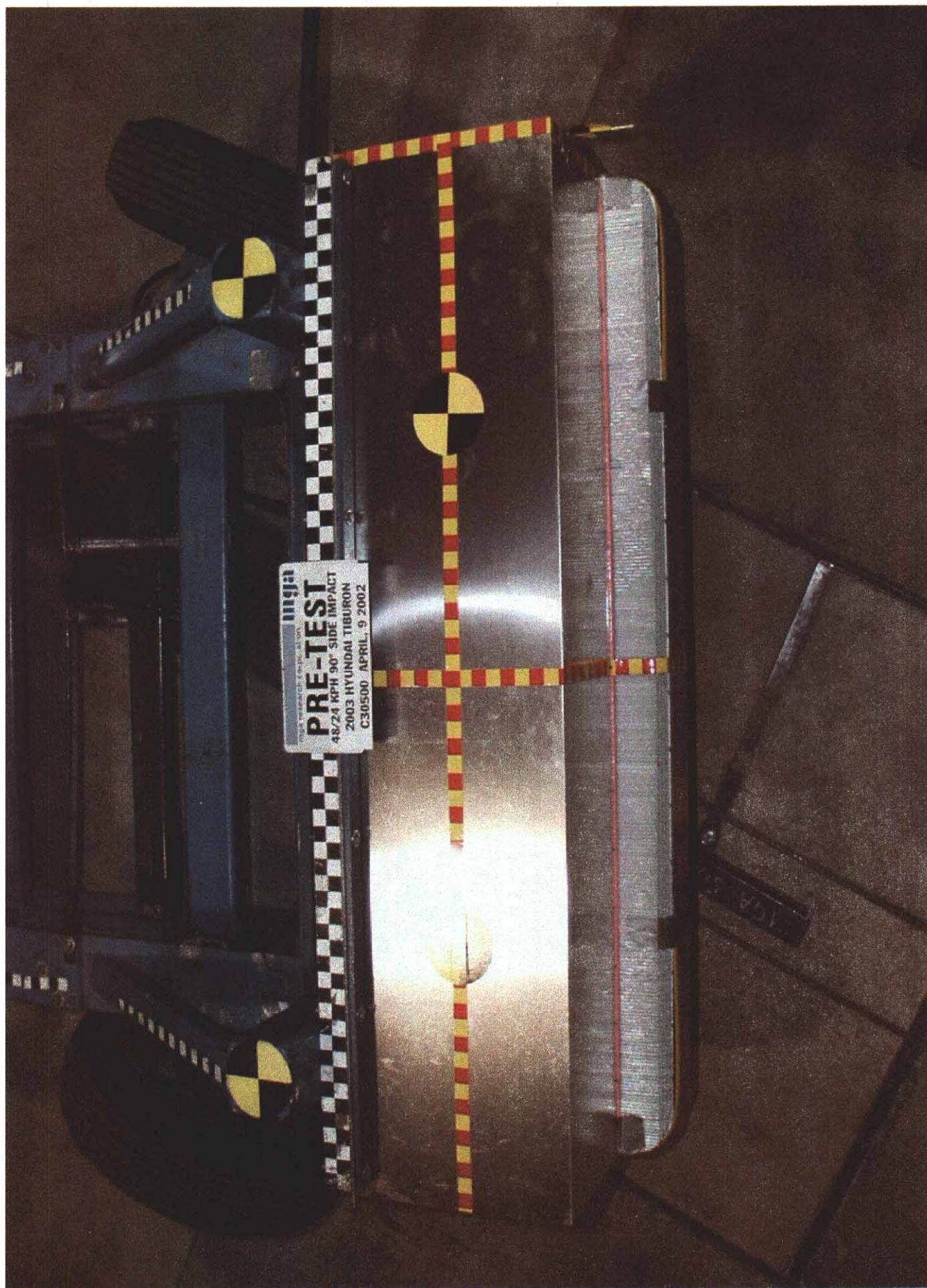
Post-Test MDB and Vehicle (left side)



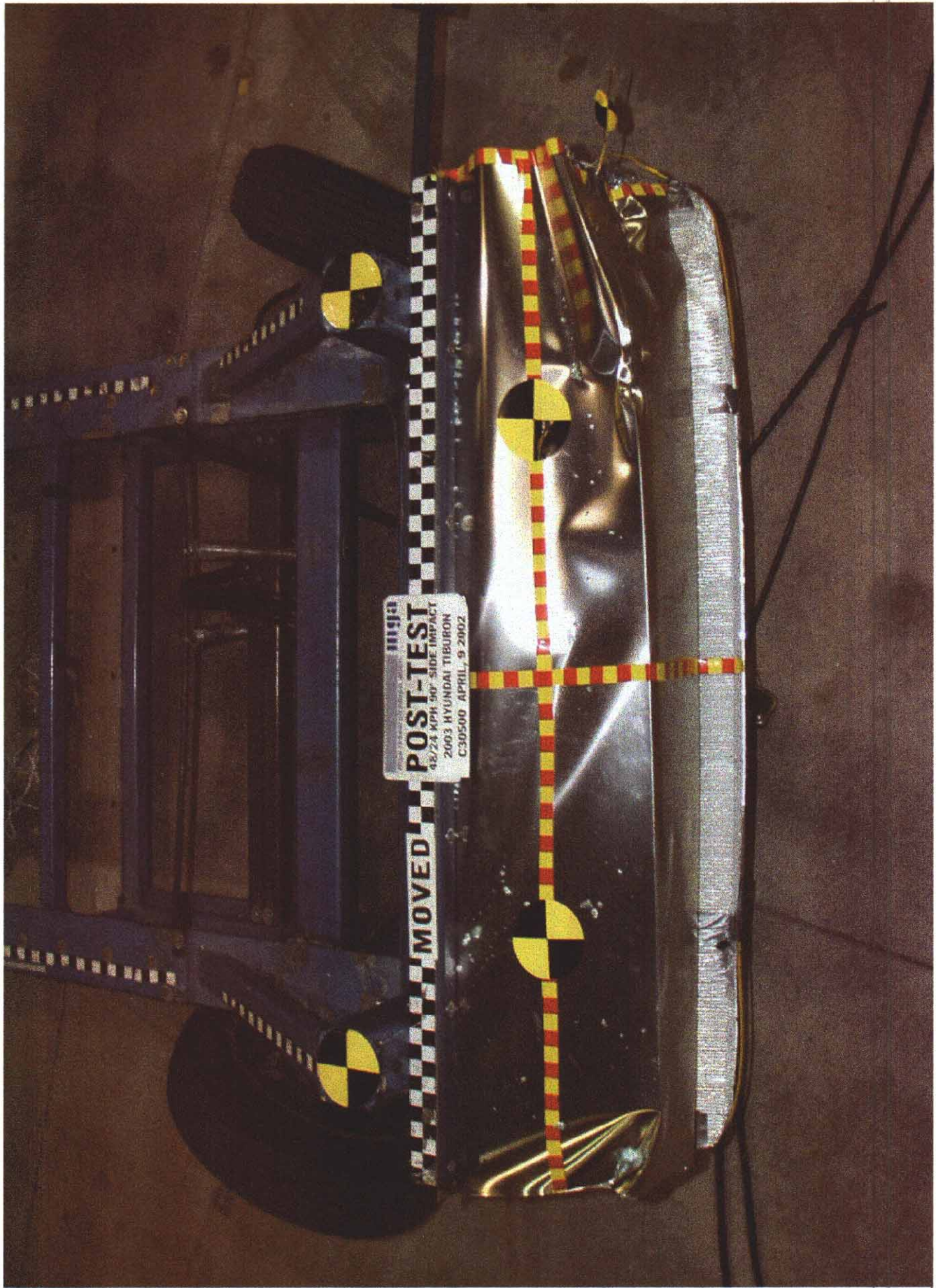
Post-Test MDB and Vehicle (right side)



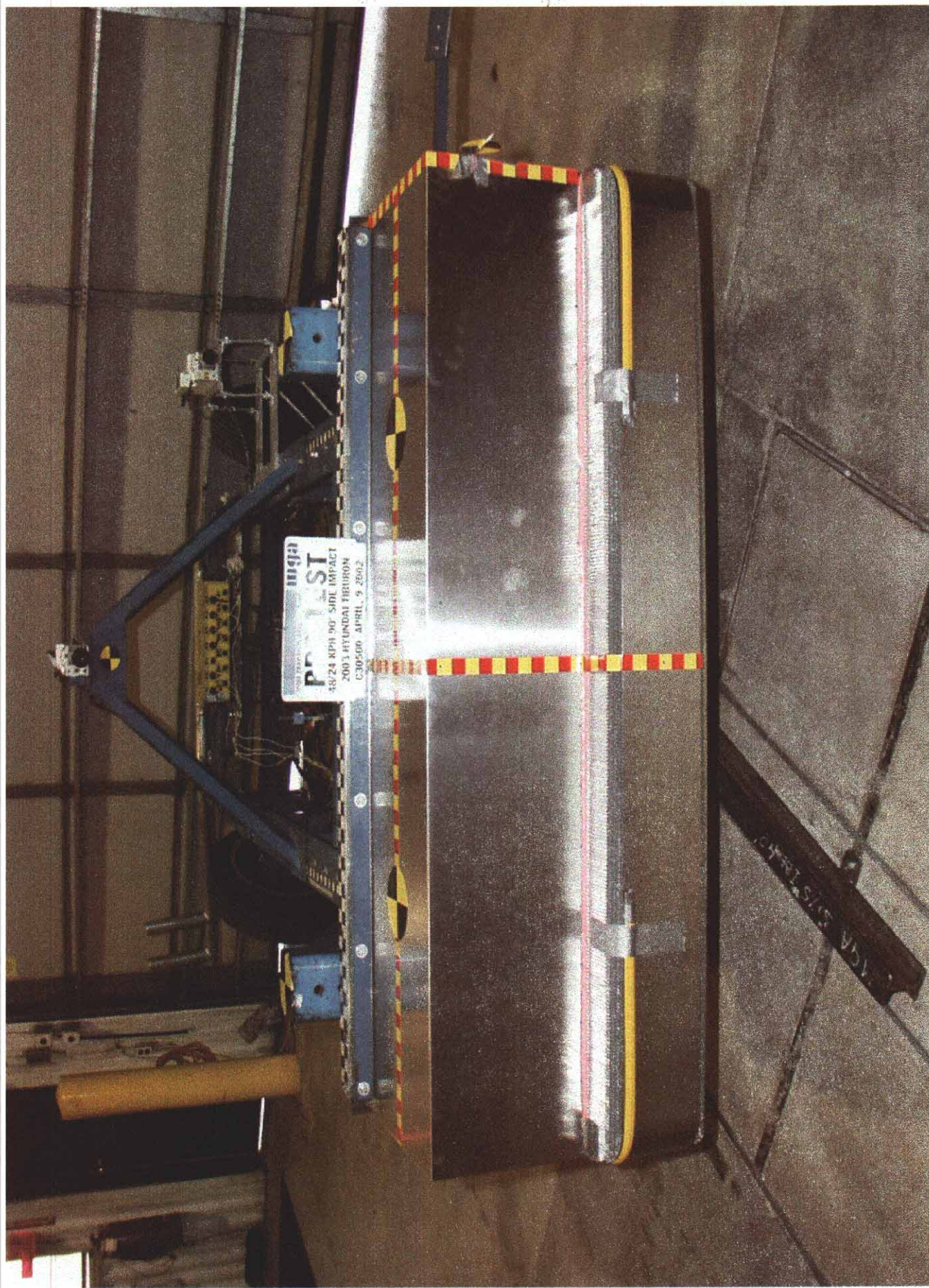
Post-Test MDB and Vehicle Overhead View



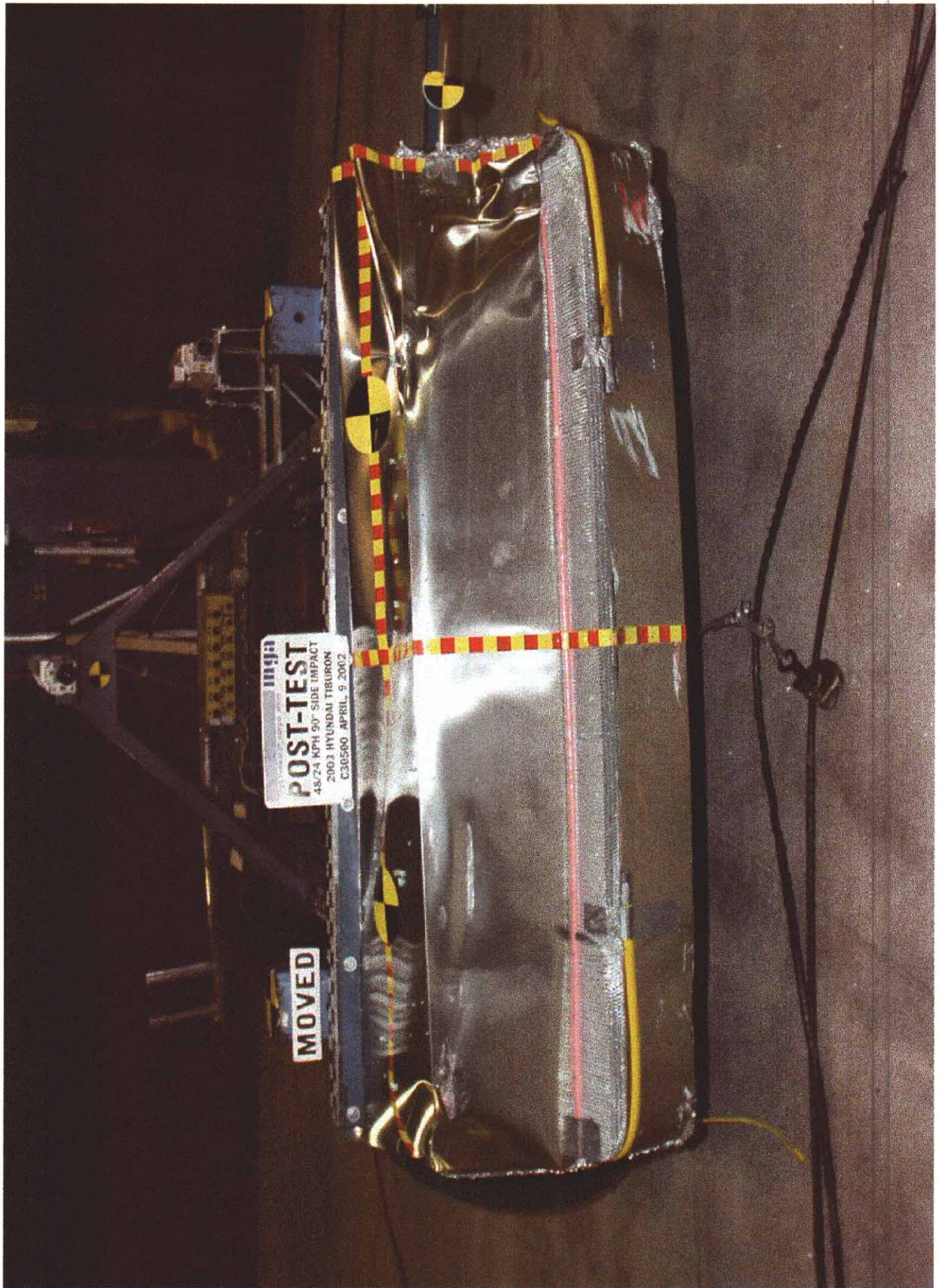
Pre-Test MDB Top View



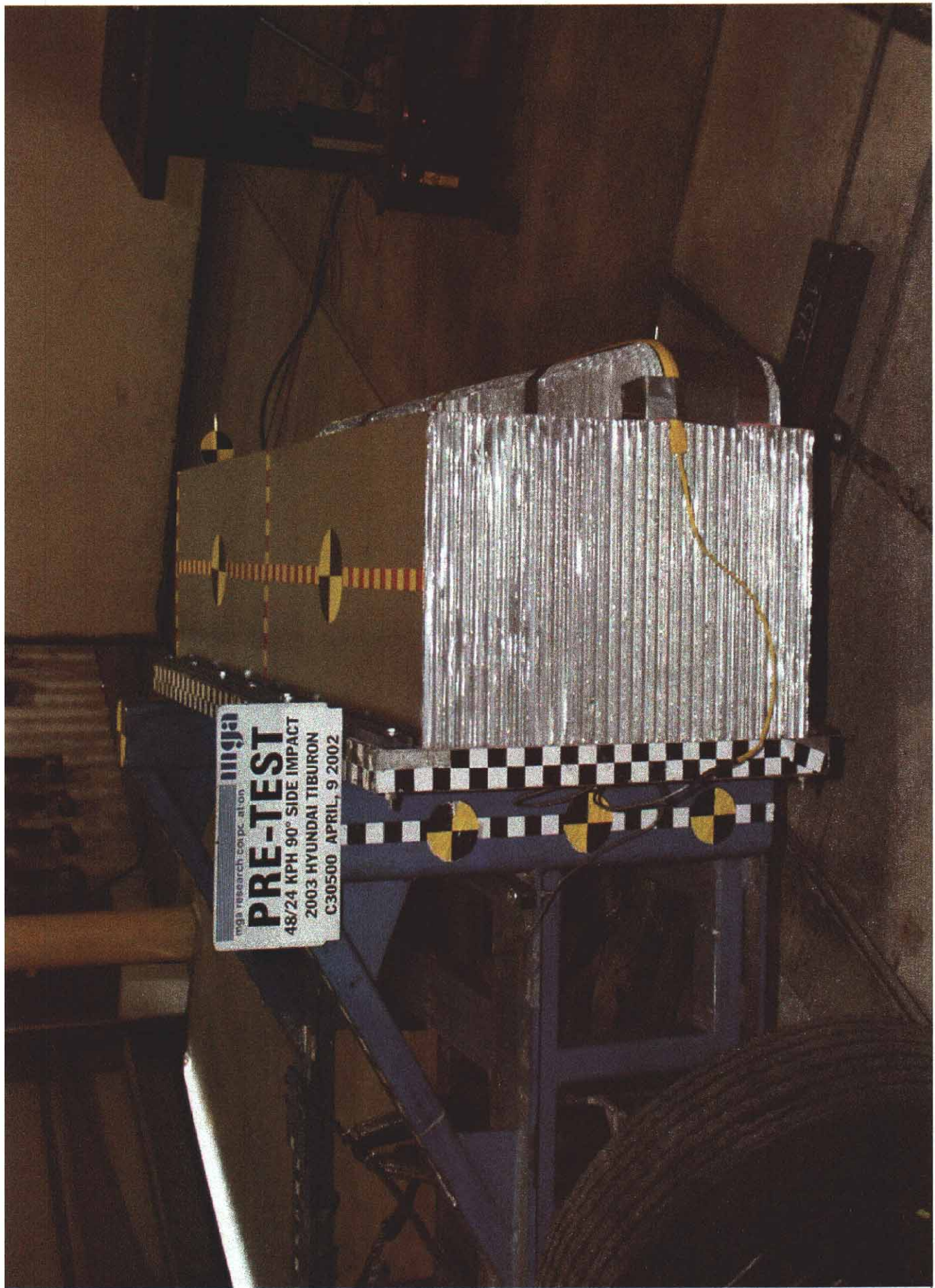
Post-Test MDB Top View



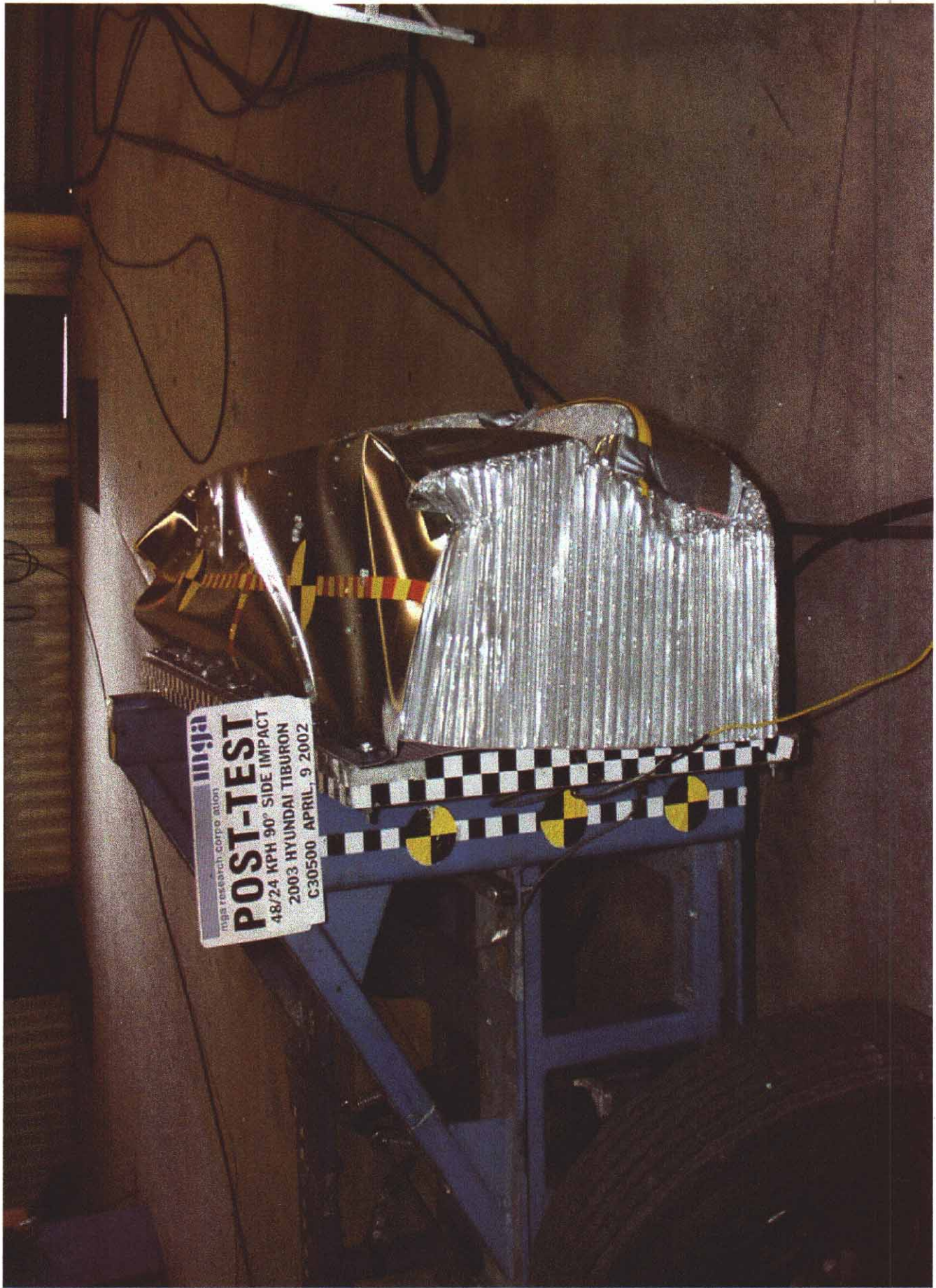
Pre-Test MDB Front View



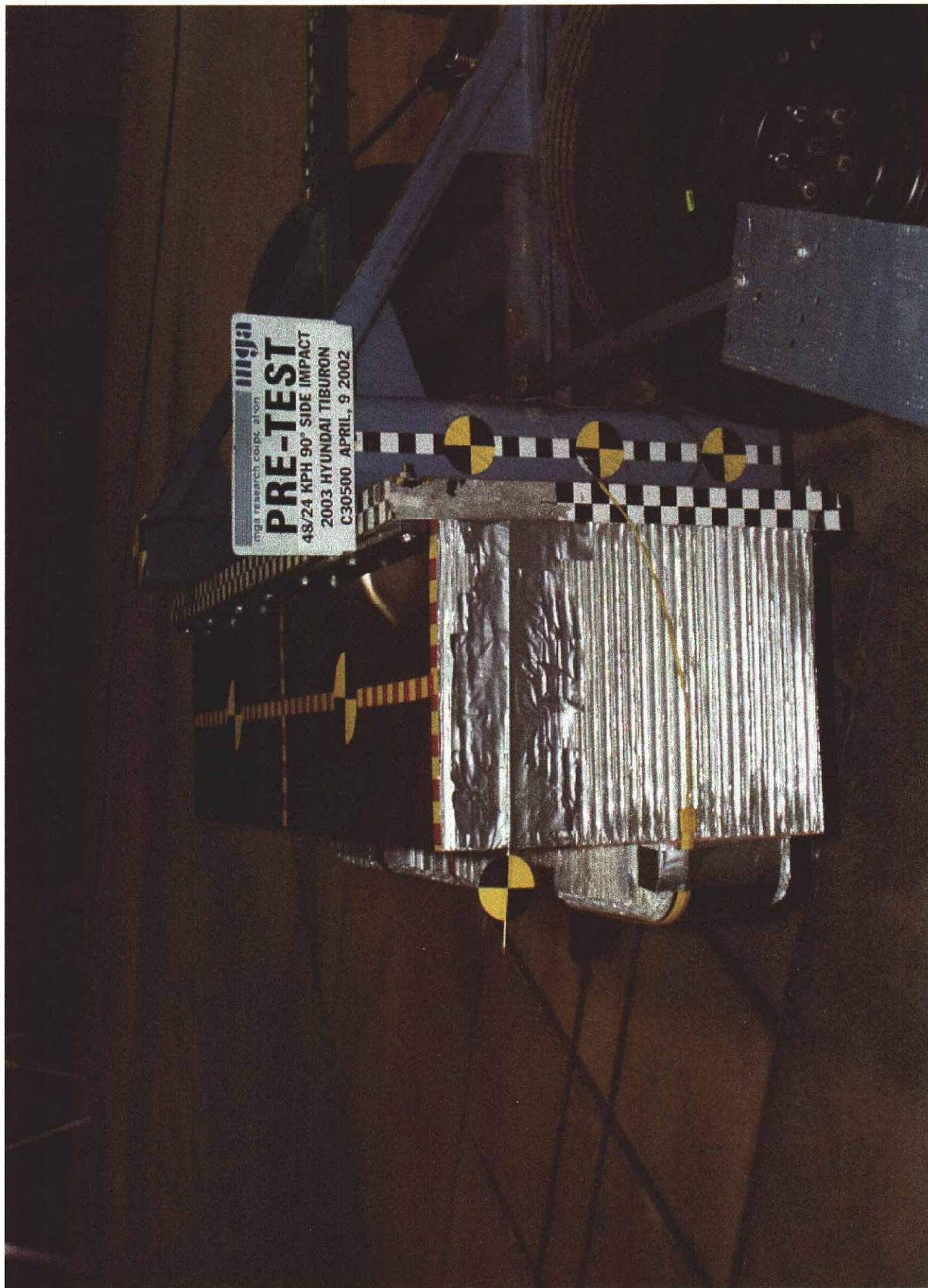
Post-Test MDB Front View



Pre-Test MDB Right Side View



Post-Test MDB Right Side View



Pre-Test MDB Left Side View



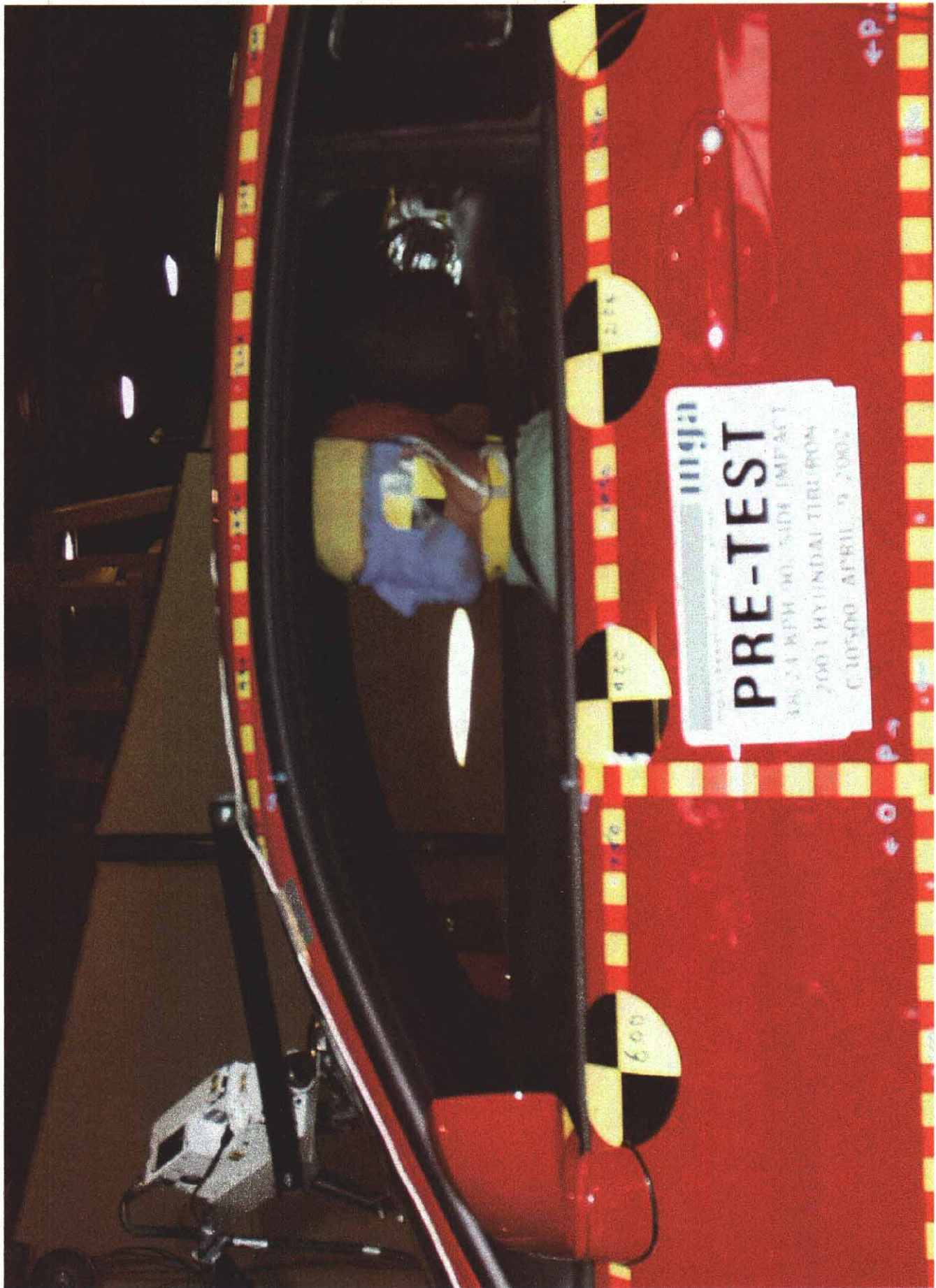
Post-Test MDB Left Side View



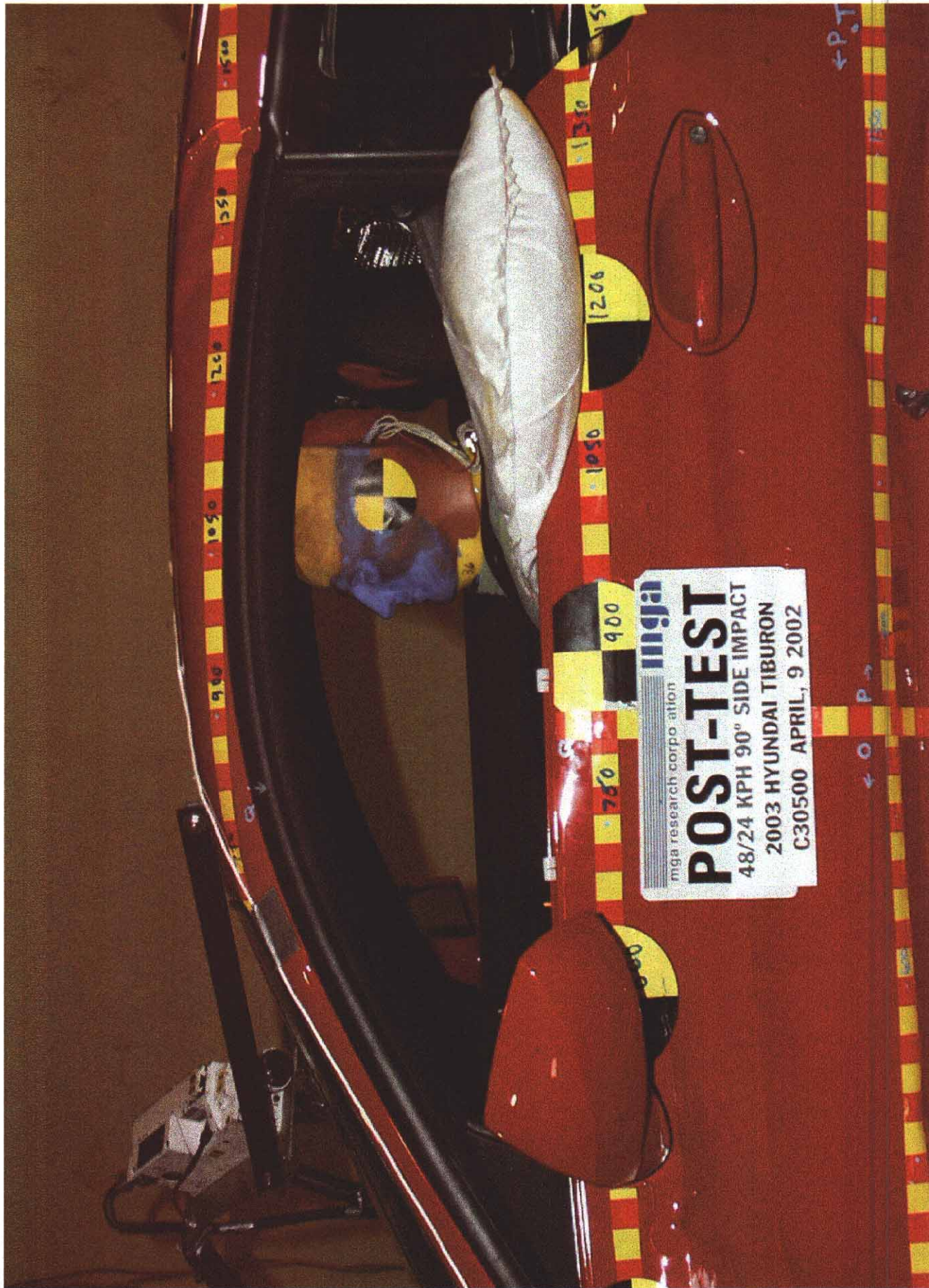
Pre-Test Driver Dummy Right Side View



Post-Test Driver Dummy Right Side View



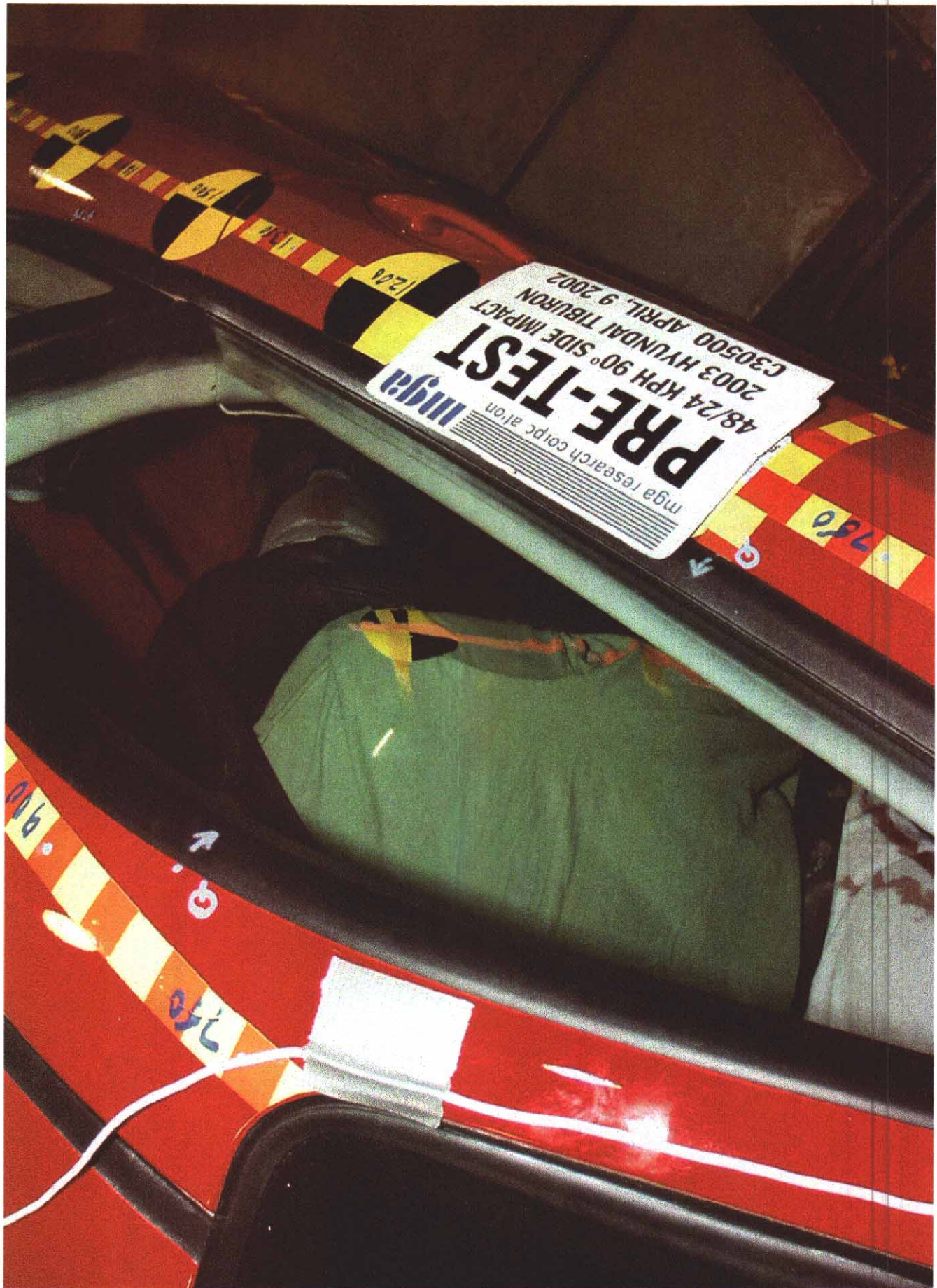
Pre-Test Driver Dummy Left Side View



Post-Test Driver Dummy Left Side View



Pre-Test Driver Dummy Left Side View (Door Open)



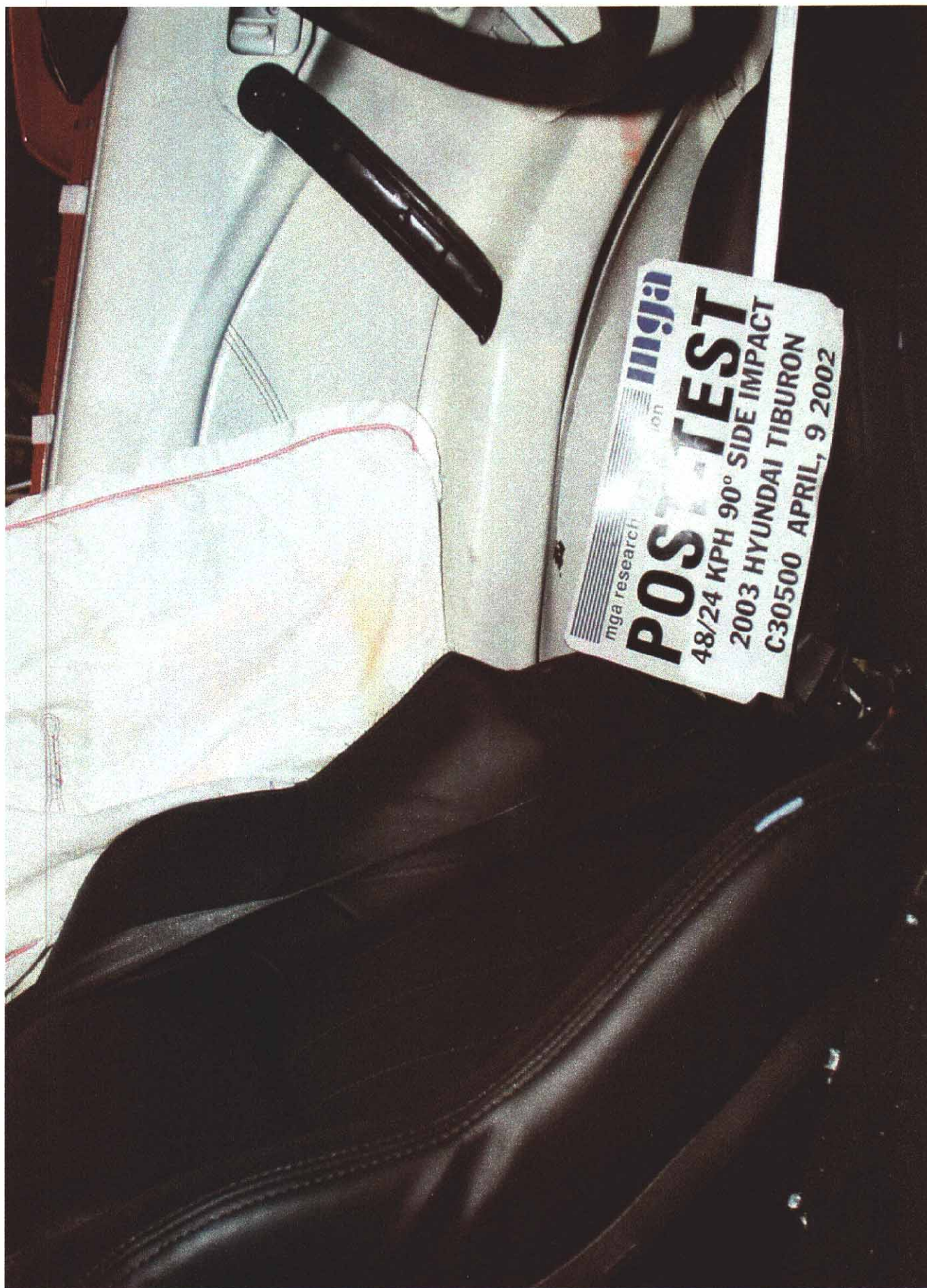
Pre-Test Driver Dummy Shoulder and Door Top View



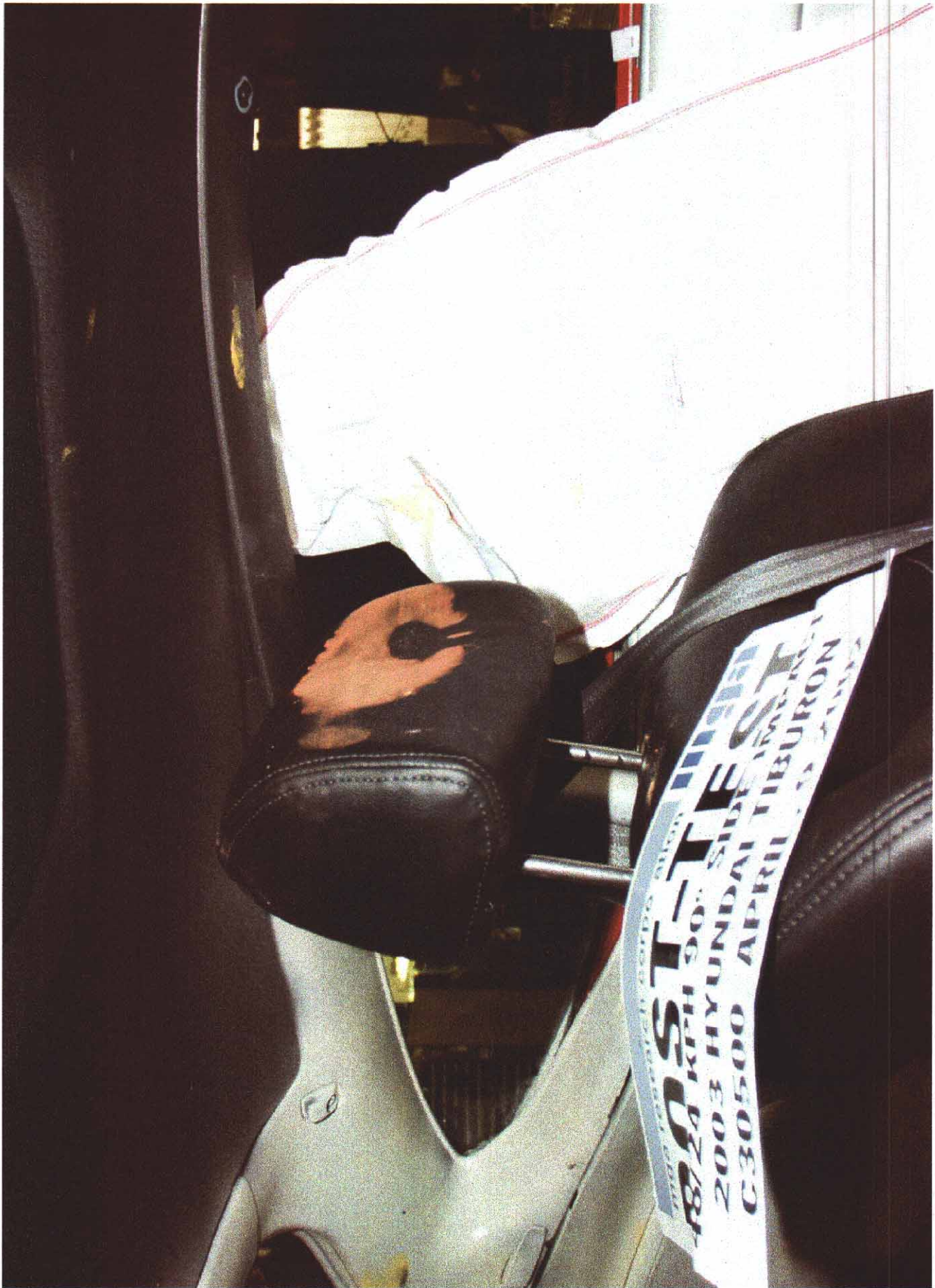
Post-Test Driver Dummy Shoulder and Door Top View



Post-Test Driver Dummy Contact



Post-Test Driver Dummy Contact



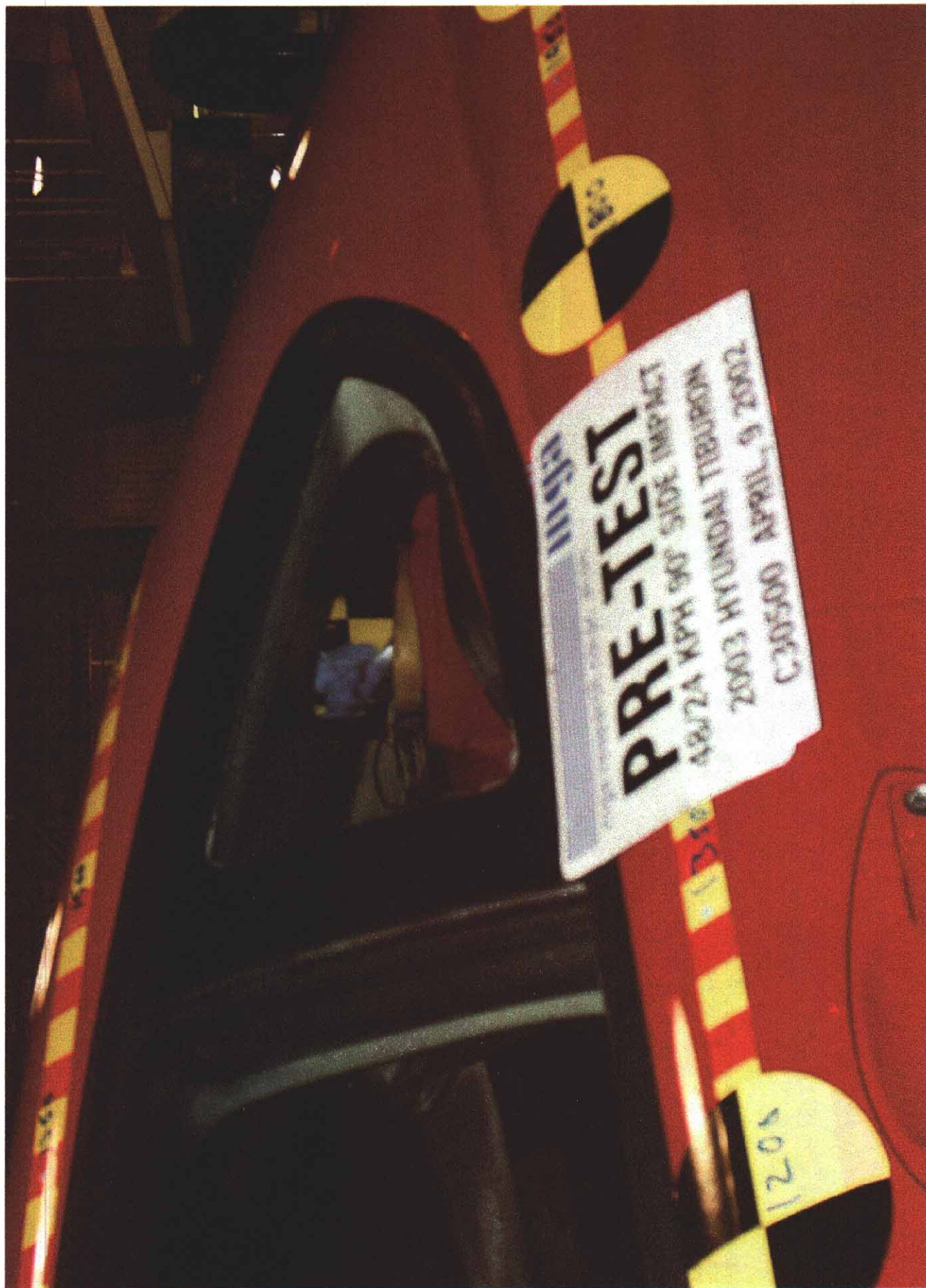
Post-Test Driver Dummy Head Contact



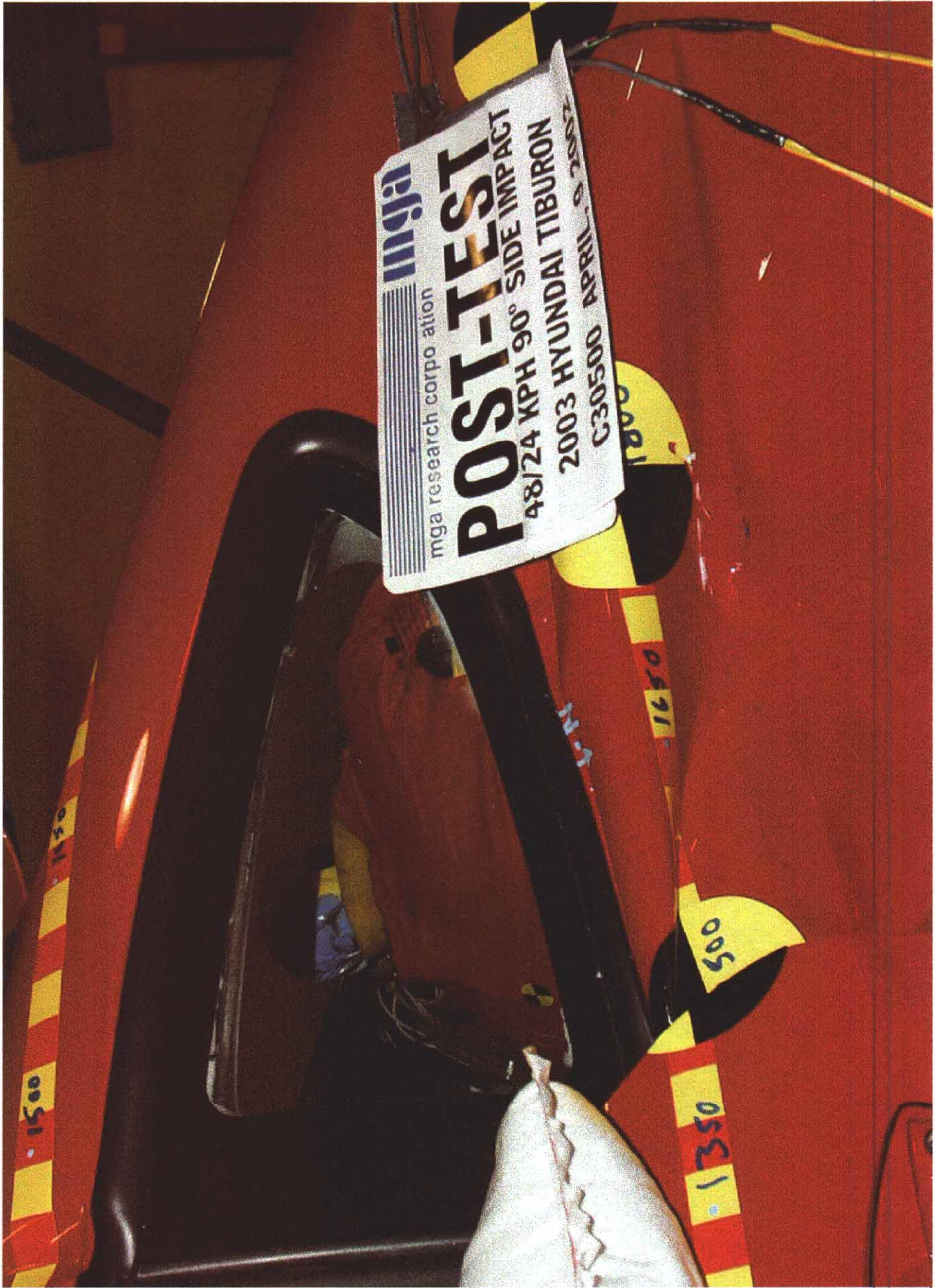
Pre-Test Passenger Dummy Right Side View



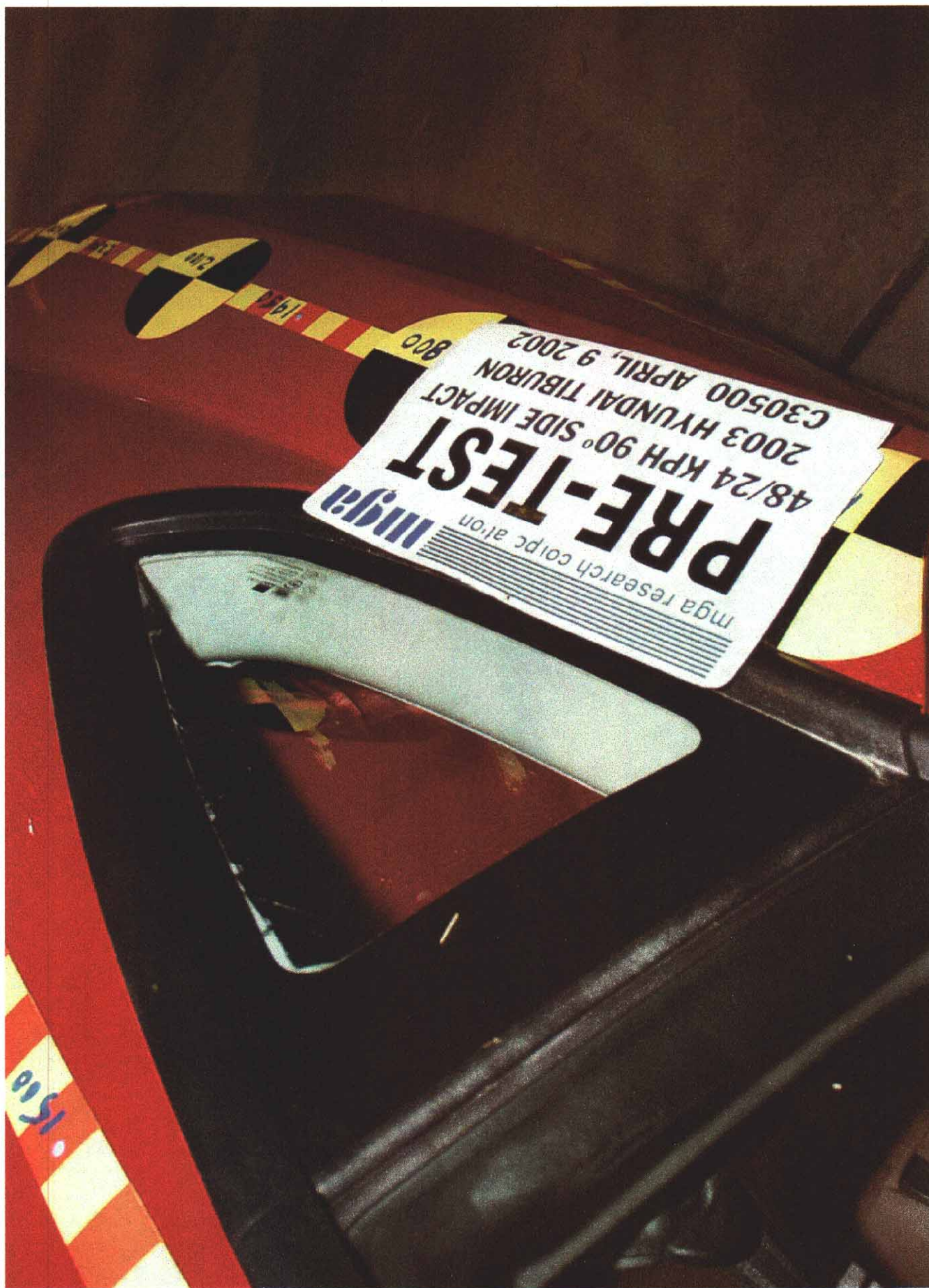
Post-Test Passenger Dummy Right Side View



Pre-Test Passenger Dummy Left Side View



Post-Test Passenger Dummy Left Side View



Pre-Test Passenger Dummy Shoulder and Door Top View



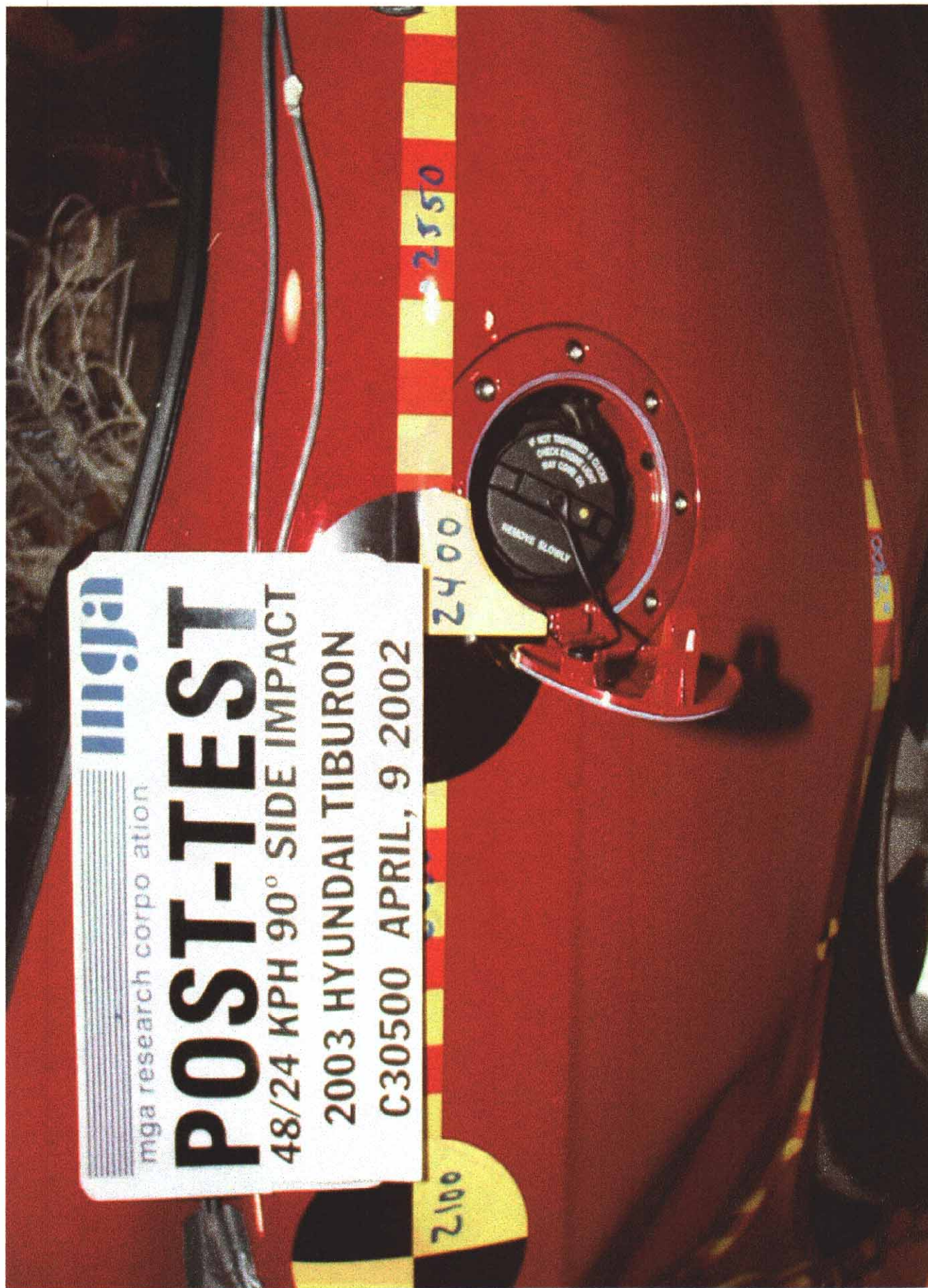
Post-Test Passenger Dummy Shoulder and Door Top View



Post-Test Passenger Dummy Contact



Pre-Test Fuel Filler Cap



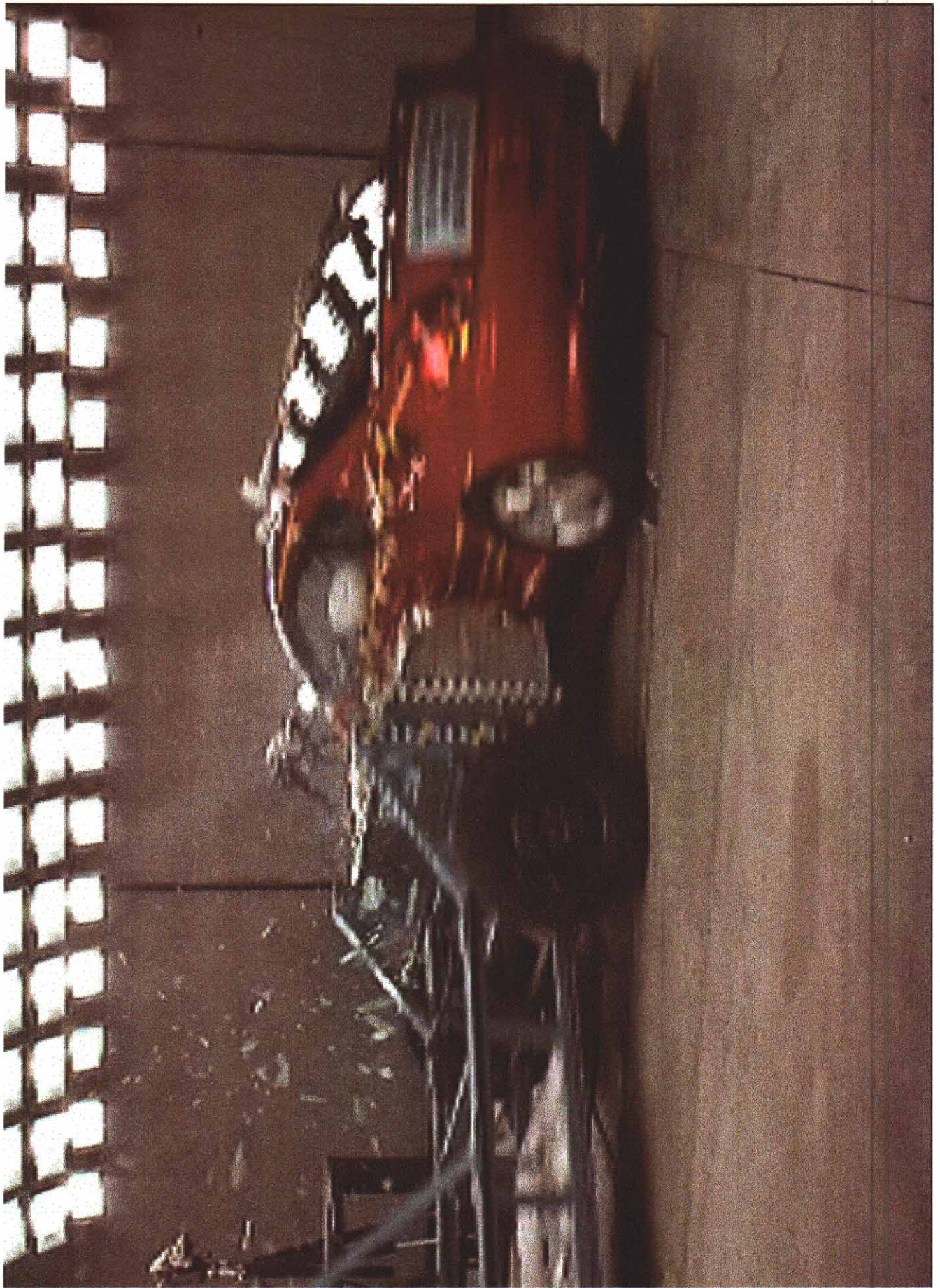
Post-Test Fuel Filler Cap



Pre-Test Impact Point on Vehicle



Post-Test Impact Point on Vehicle



Impact



Roof Separation View of Test Vehicle

MANUFACTURED IN KOREA BY
HYUNDAI MOTOR COMPANY

NOV/14/01 GVWR 3865 LBS PAINT V X

GAWR FRONT 2205 LBS
GAWR REAR 1895 LBS TRIM LK

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S.A. FEDERAL
MOTOR VEHICLE SAFETY, BUMPER AND THEFT PREVENTION STANDARDS
IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

V.I.N KMHNN55F03U008127
PASSENGER CAR

Vehicle Certification Label

G1 TIRE INFLATION PRESSURE(COLD)

STANDARD INFLATION PRESSURE FOR ALL LOAD

1ST SEAT 2 PASS.

2ND SEAT 2 PASS.

TOTAL 4 PASS.

LUGGAGE 45kg(100LBS)

VEHICLE CAPACITY WT.

317kg(700LBS)

TIRE SIZE P195/65R15 89V

P205/55R16 89V

FRONT

REAR

210kPa(30psi) 210kPa(30psi)

TIRE SIZE

215/45ZR17 87W

LOAD UP TO 2 PERSONS

MAX. VEHICLE WEIGHT LIMIT

FRONT

REAR

FRONT

REAR

220kPa

(32 psi)

210kPa

(30 psi)

240kPa

(35 psi)

210kPa

(30 psi)

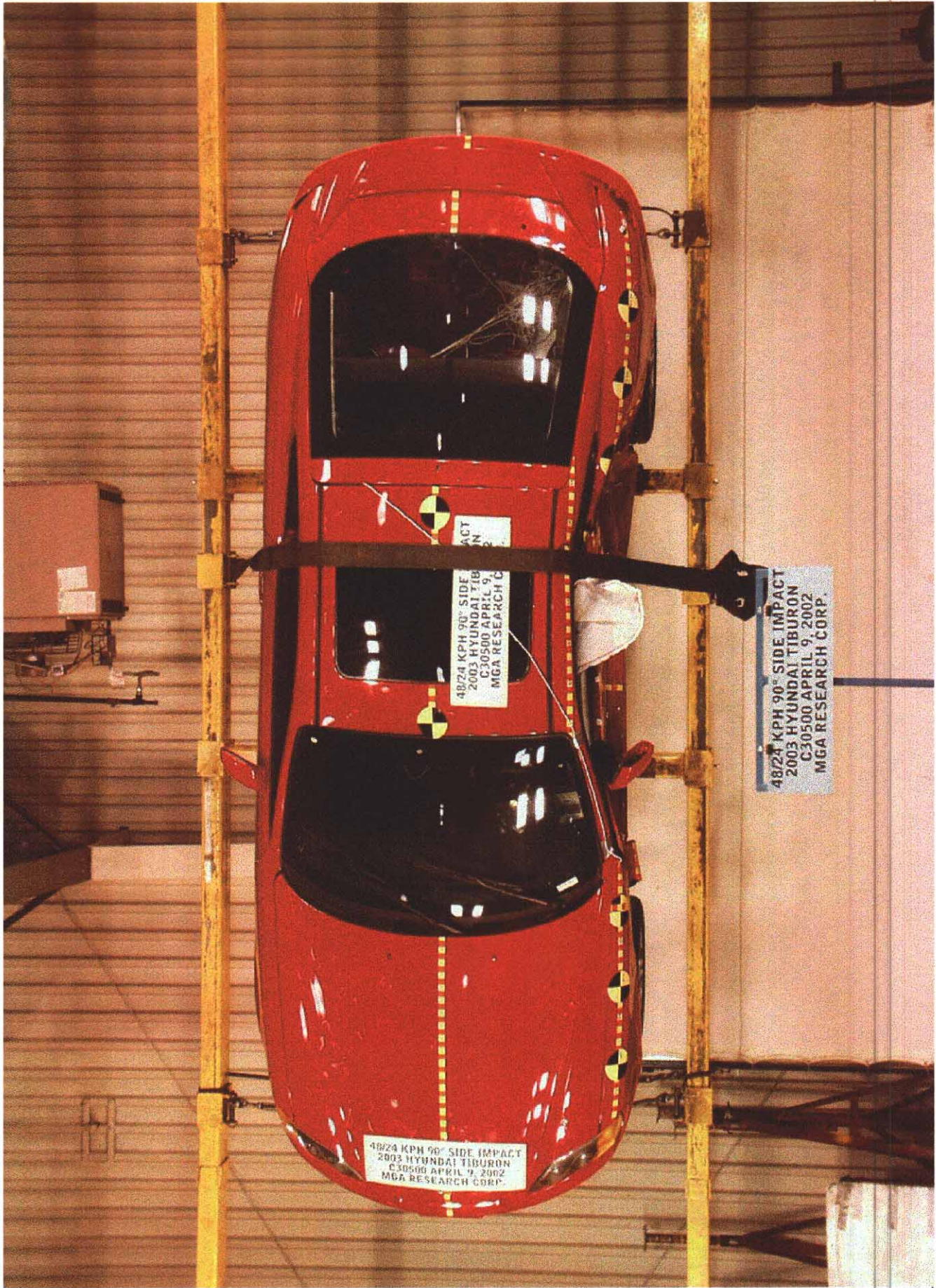
TIRE SIZE T125/70R16

TEMPORARY USE ONLY

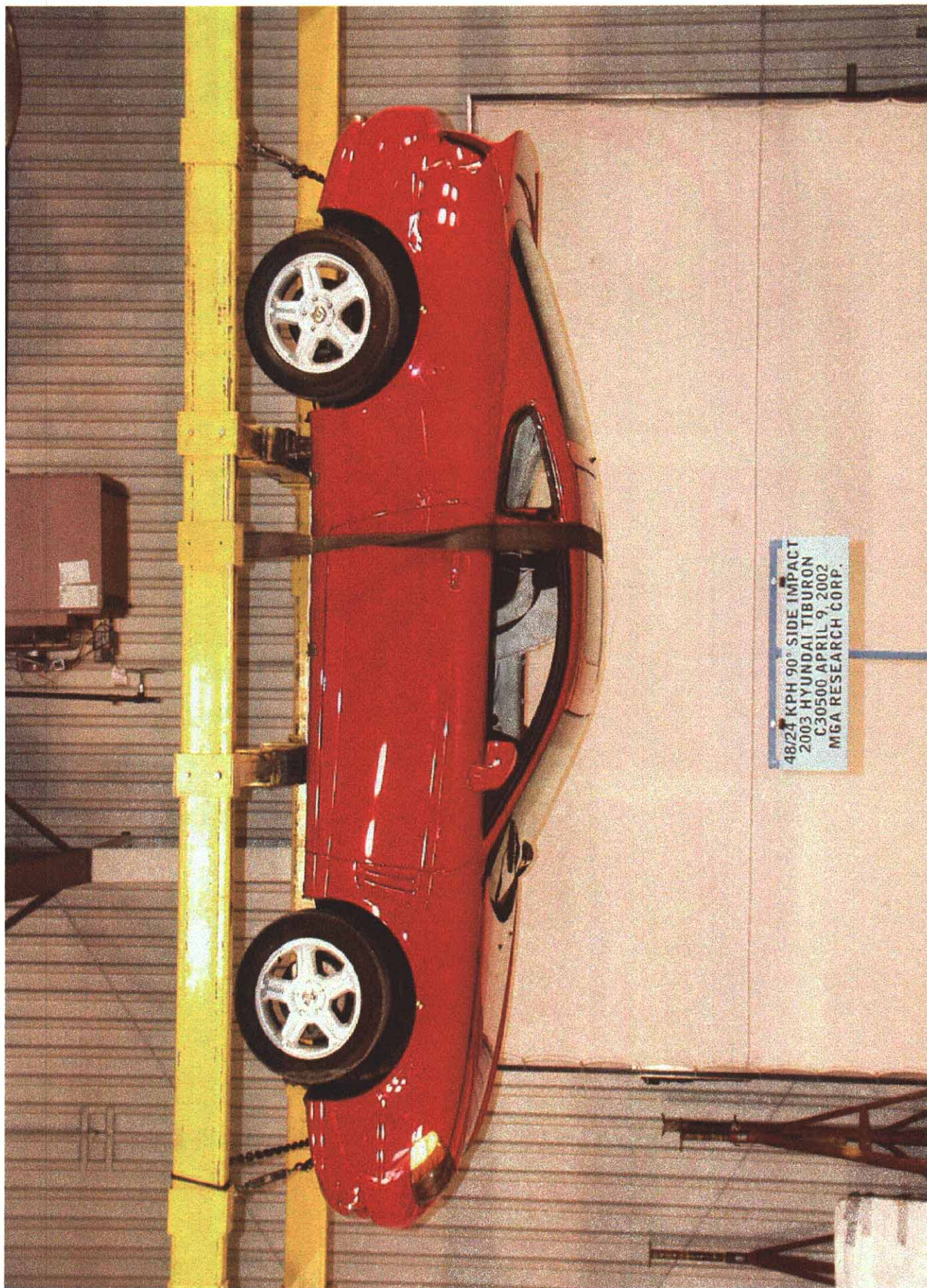
420kPa

(60 psi)

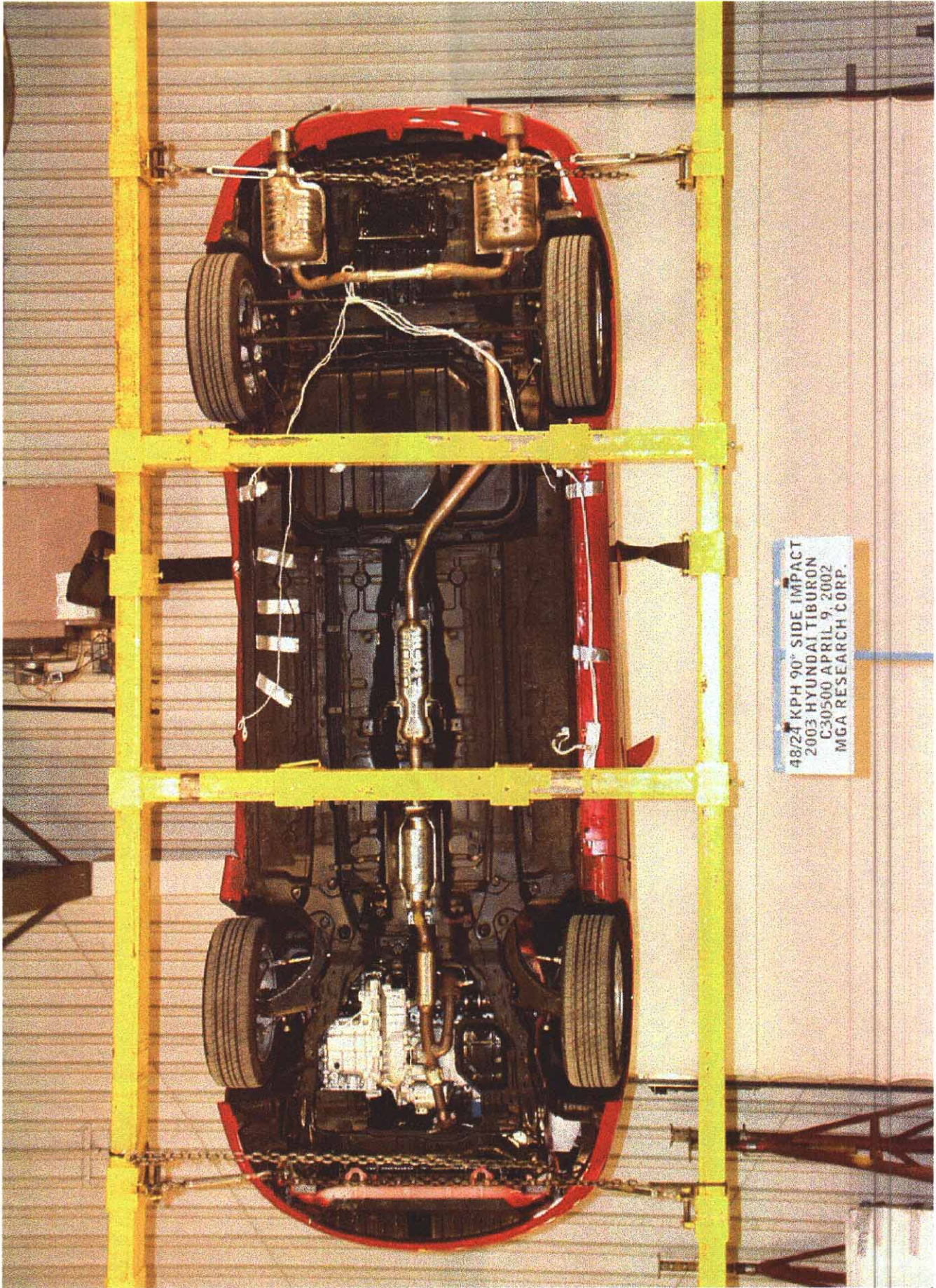
Tire Placard



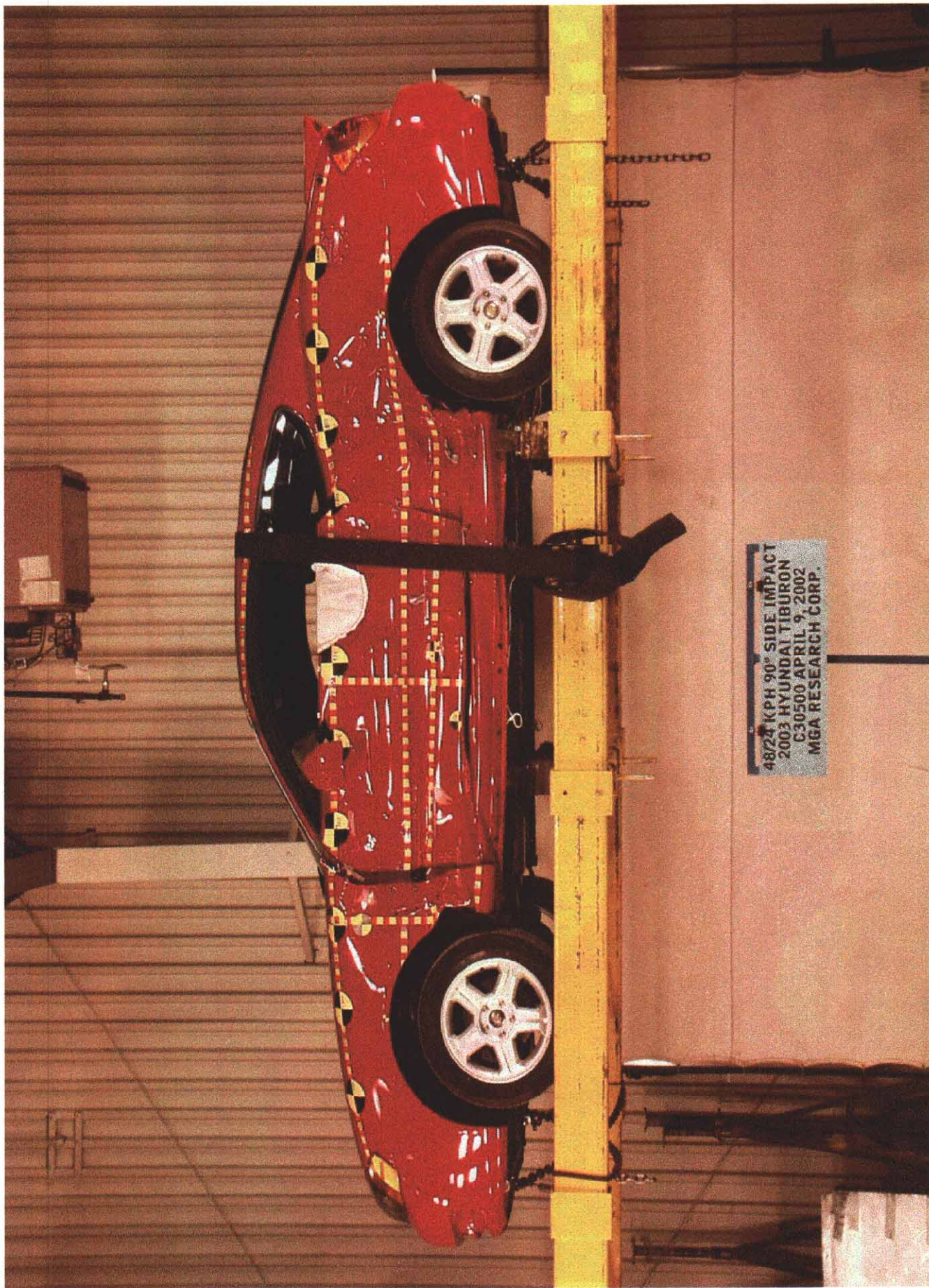
Rollover 90 degree



Rollover 180 degree



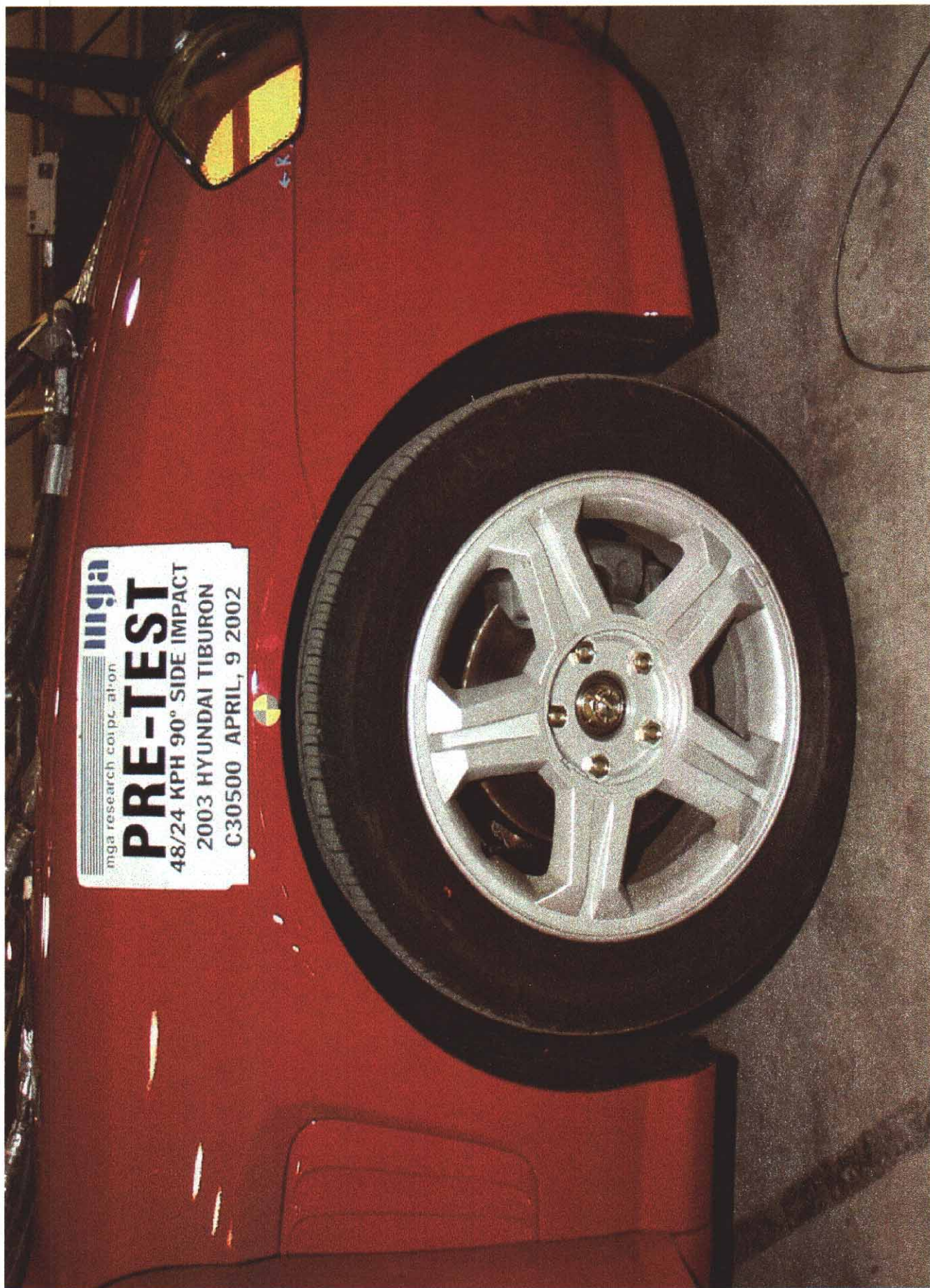
Rollover 270 degree



Rollover 360 degree



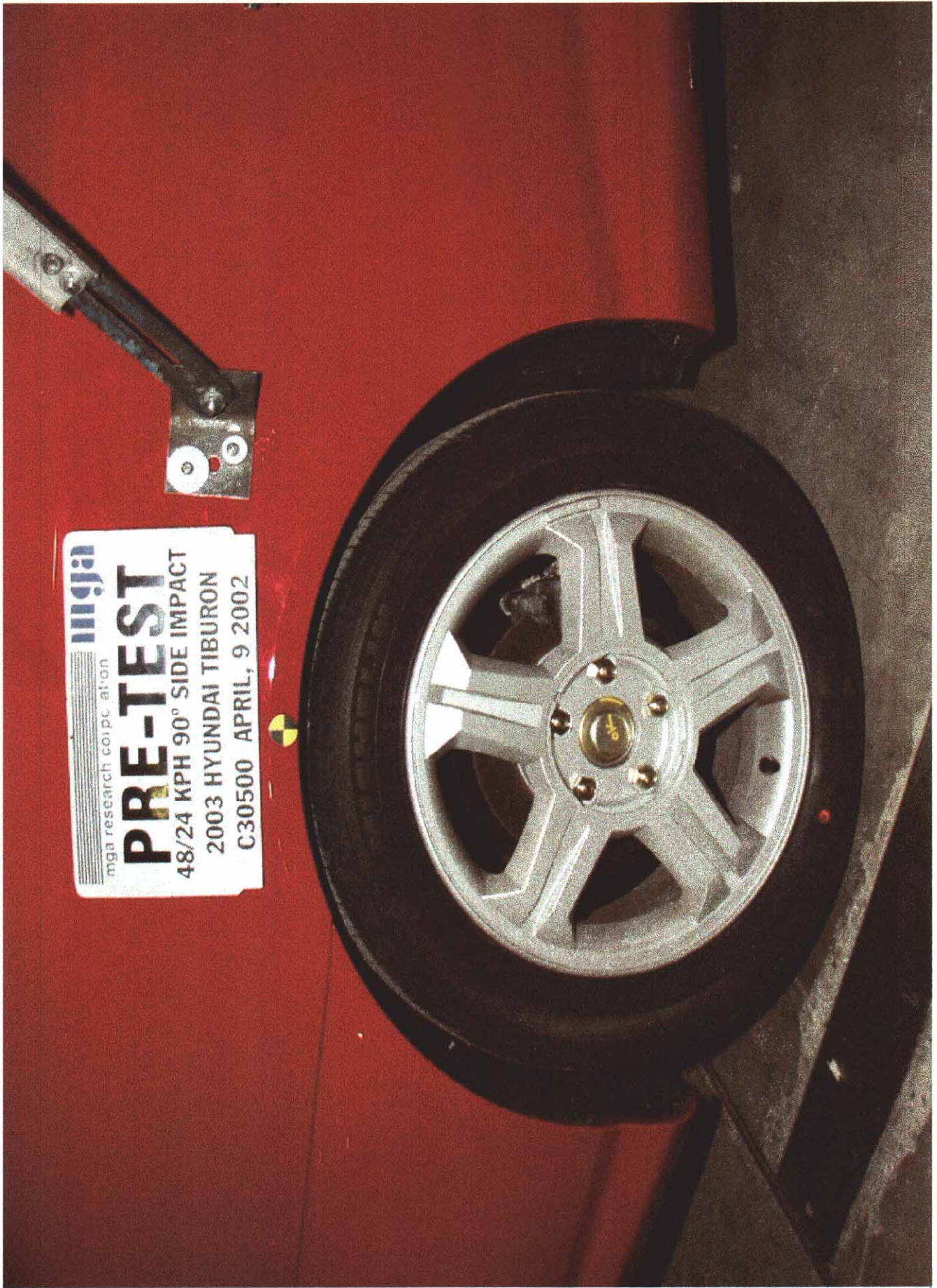
Left Front Attitude Point



Right Front Attitude Point



Left Rear Attitude Point



Right Rear Attitude Point

APPENDIX B
SID, VEHICLE, AND MDB RESPONSE DATA

TABLE OF DATA PLOTS

Figure No. 1	Driver Upper Rib Y Acceleration vs. Time	B-1
Figure No 2	Driver Upper Rib Y Velocity vs Time	B-1
Figure No 3	Driver Lower Rib Y Acceleration vs Time	B-1
Figure No 4	Driver Lower Rib Y Velocity vs Time	B-1
Figure No 5	Driver Lower Spine Y Acceleration vs Time	B-2
Figure No. 6	Driver Lower Spine Y Velocity vs. Time	B-2
Figure No. 7	Driver Pelvis Y Acceleration vs. Time	B-2
Figure No. 8	Driver Pelvis Y Velocity vs Time	B-2
Figure No 9	Passenger Upper Rib Y Acceleration vs. Time	B-3
Figure No 10	Passenger Upper Rib Y Velocity vs Time	B-3
Figure No 11	Passenger Lower Rib Y Acceleration vs. Time	B-3
Figure No. 12	Passenger Lower Rib Y Velocity vs. Time	B-3
Figure No. 13	Passenger Lower Spine Y Acceleration vs. Time	B-4
Figure No. 14	Passenger Lower Spine Y Velocity vs. Time	B-4
Figure No 15	Passenger Pelvis Y Acceleration vs. Time	B-4
Figure No 16	Passenger Pelvis Y Velocity vs. Time	B-4
Figure No. 17	Left Front Sill Y Acceleration vs Time	B-5
Figure No 18	Left Front Sill Y Velocity vs Time	B-5
Figure No. 19	Left Rear Sill Y Acceleration vs Time	B-5
Figure No. 20	Left Rear Sill Y Velocity vs. Time	B-5
Figure No 21	Right Front Sill X Acceleration vs. Time	B-6
Figure No. 22	Right Front Sill Y Acceleration vs. Time	B-6
Figure No 23	Right Front Sill Z Acceleration vs Time	B-6
Figure No 24	Right Front Sill Resultant Acceleration vs Time	B-6
Figure No 25	Right Front Sill X Velocity vs Time	B-7
Figure No 26	Right Front Sill Y Velocity vs Time	B-7
Figure No. 27	Right Front Sill Z Velocity vs Time	B-7
Figure No 28	Right Rear Sill X Acceleration vs Time	B-8
Figure No 29	Right Rear Sill Y Acceleration vs Time	B-8
Figure No 30	Right Rear Sill Z Acceleration vs. Time	B-8

Figure No 31	Right Rear Sill Resultant Acceleration vs Time	B-8
Figure No. 32	Right Rear Sill X Velocity vs. Time	B-9
Figure No 33	Right Rear Sill Y Velocity vs. Time	B-9
Figure No 34	Right Rear Sill Z Velocity vs Time	B-9
Figure No 35	Driver Seat Track Y Acceleration vs. Time	B-10
Figure No. 36	Driver Seat Track Y Velocity vs Time	B-10
Figure No. 37	RR Occupant Compartment Y Acceleration vs. Time	B-10
Figure No 38	RR Occupant Compartment Y Velocity vs Time	B-10
Figure No 39	Floorpan @ Rear Axle X Acceleration vs. Time	B-11
Figure No. 40	Floorpan @ Rear Axle Y Acceleration vs Time	B-11
Figure No. 41	Floorpan @ Rear Axle Z Acceleration vs. Time	B-11
Figure No. 42	Floorpan @ Rear Axle Resultant Acceleration vs. Time	B-11
Figure No. 43	Floorpan @ Rear Axle X Velocity vs. Time	B-12
Figure No 44	Floorpan @ Rear Axle Y Velocity vs Time	B-12
Figure No 45	Floorpan @ Rear Axle Z Velocity vs. Time	B-12
Figure No. 46	Left Lower A-Post Y Acceleration vs. Time	B-13
Figure No. 47	Left Lower A-Post Y Velocity vs. Time	B-13
Figure No. 48	Left Mid A-Post Y Acceleration vs. Time	B-13
Figure No. 49	Left Mid A-Post Y Velocity vs. Time	B-13
Figure No. 50	Left Lower B-Post Y Acceleration vs. Time	B-14
Figure No. 51	Left Lower B-Post Y Velocity vs Time	B-14
Figure No. 52	Left Mid B-Post Y Acceleration vs. Time*	B-14
Figure No. 53	Left Mid B-Post Y Velocity vs Time*	B-14
Figure No 54	Vehicle CG X Acceleration vs. Time	B-15
Figure No 55	Vehicle CG Y Acceleration vs Time	B-15
Figure No 56	Vehicle CG Z Acceleration vs Time	B-15
Figure No 57	Vehicle CG Resultant Acceleration vs Time	B-15
Figure No 58	Vehicle CG X Velocity vs Time	B-16
Figure No 59	Vehicle CG Y Velocity vs Time	B-16

* No Valid Data After Approximately 28 msec.

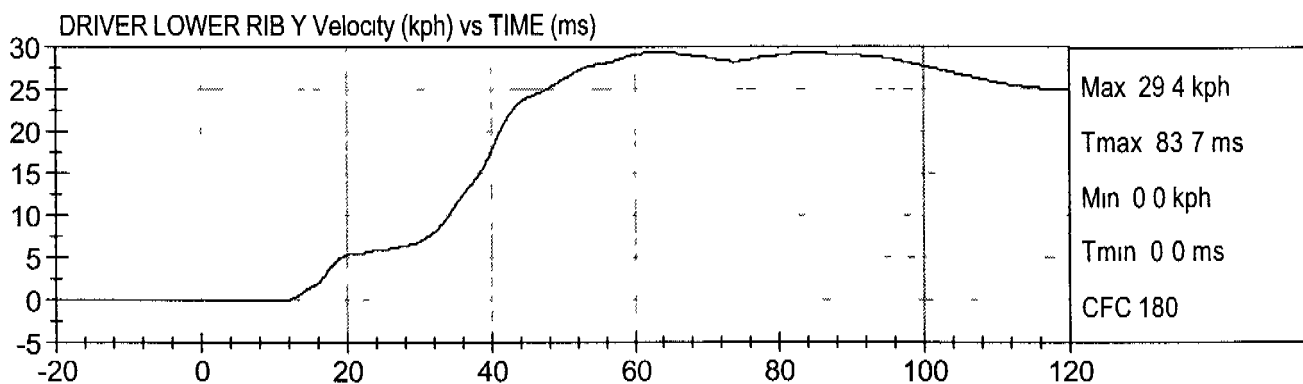
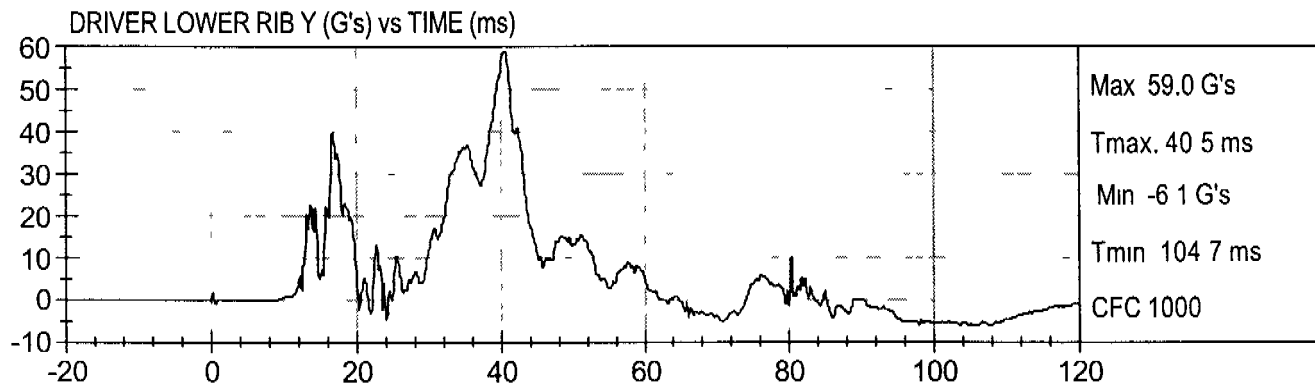
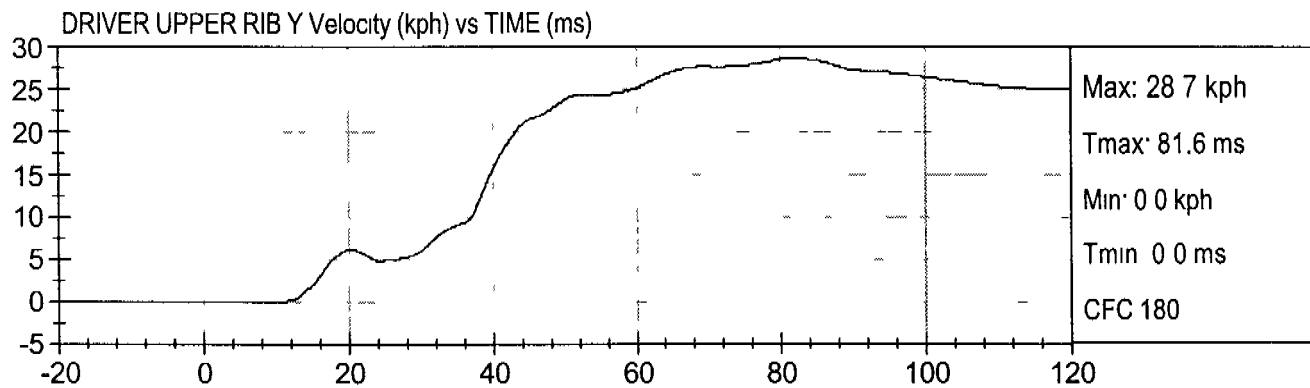
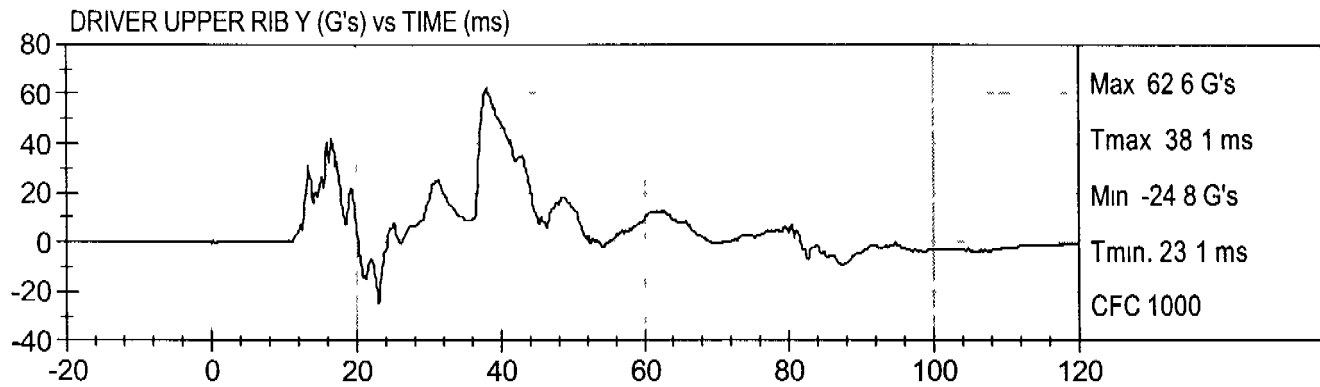
Figure No 60	Vehicle CG Z Velocity vs. Time	B-16
Figure No. 61	MDB CG X Acceleration vs Time	B-17
Figure No. 62	MDB CG Y Acceleration vs Time	B-17
Figure No. 63	MDB CG Z Acceleration vs Time	B-17
Figure No. 64	MDB CG Resultant Acceleration vs. Time	B-17
Figure No 65	MDB CG X Velocity vs. Time	B-18
Figure No 66	MDB CG Y Velocity vs Time	B-18
Figure No. 67	MDB CG Z Velocity vs. Time	B-18
Figure No. 68	MDB Rear X Acceleration vs. Time	B-19
Figure No. 69	MDB Rear X Velocity vs Time	B-19
Figure No. 70	MDB Rear Y Acceleration vs. Time	B-19
Figure No. 71	MDB Rear Y Velocity vs. Time	B-19
Figure No. 72	Left MDB Contact vs Time	B-20
Figure No. 73	Right MDB Contact vs. Time	B-20
Figure No 74	Driver Upper Rib Y Redundant Acceleration vs. Time	B-21
Figure No 75	Driver Upper Rib Y Redundant Velocity vs. Time	B-21
Figure No 76	Driver Lower Rib Y Redundant Acceleration vs. Time	B-21
Figure No 77	Driver Lower Rib Y Redundant Velocity vs Time	B-21
Figure No 78	Driver Lower Spine Y Redundant Acceleration vs. Time	B-22
Figure No 79	Driver Lower Spine Y Redundant Velocity vs. Time	B-22
Figure No 80	Driver Pelvis Y Redundant Acceleration vs Time	B-22
Figure No 81	Driver Pelvis Y Redundant Velocity vs Time	B-22
Figure No 82	Passenger Upper Rib Y Redundant Acceleration vs Time	B-23
Figure No 83	Passenger Upper Rib Y Redundant Velocity vs Time	B-23
Figure No 84	Passenger Lower Rib Y Redundant Acceleration vs. Time	B-23
Figure No. 85	Passenger Lower Rib Y Redundant Velocity vs. Time	B-23
Figure No 86	Passenger Lower Spine Y Redundant Acceleration vs Time	B-24
Figure No 87	Passenger Lower Spine Y Redundant Velocity vs Time	B-24
Figure No 88	Passenger Pelvis Y Redundant Acceleration vs Time	B-24
Figure No. 89	Passenger Pelvis Y Redundant Velocity vs. Time	B-24
Figure No. 90	Driver Upper Rib Y Acceleration vs. Time	B-25

Figure No. 91	Driver Upper Rib Y Velocity vs Time	B-25
Figure No 92	Driver Upper Rib Y Redundant Acceleration vs. Time	B-25
Figure No 93	Driver Upper Rib Y Redundant Velocity vs. Time	B-25
Figure No 94	Driver Lower Rib Y Acceleration vs. Time	B-26
Figure No 95	Driver Lower Rib Y Velocity vs. Time	B-26
Figure No 96	Driver Lower Rib Y Redundant Acceleration vs Time	B-26
Figure No 97	Driver Lower Rib Y Redundant Velocity vs. Time	B-26
Figure No 98	Driver Lower Spine Y Acceleration vs Time	B-27
Figure No. 99	Driver Lower Spine Y Velocity vs Time	B-27
Figure No. 100	Driver Lower Spine Y Redundant Acceleration vs. Time	B-27
Figure No 101	Driver Lower Spine Y Redundant Velocity vs. Time	B-27
Figure No 102	Driver Pelvis Y Acceleration vs. Time	B-28
Figure No 103	Driver Pelvis Y Velocity vs Time	B-28
Figure No. 104	Driver Pelvis Y Redundant Acceleration vs Time	B-28
Figure No 105	Driver Pelvis Y Redundant Velocity vs. Time	B-28
Figure No 106	Passenger Upper Rib Y Acceleration vs. Time	B-29
Figure No. 107	Passenger Upper Rib Y Velocity vs. Time	B-29
Figure No. 108	Passenger Upper Rib Y Redundant Acceleration vs. Time	B-29
Figure No 109	Passenger Upper Rib Y Redundant Velocity vs. Time	B-29
Figure No 110	Passenger Lower Rib Y Acceleration vs. Time	B-30
Figure No 111	Passenger Lower Rib Y Velocity vs Time	B-30
Figure No. 112	Passenger Lower Rib Y Redundant Acceleration vs. Time	B-30
Figure No. 113	Passenger Lower Rib Y Redundant Velocity vs. Time	B-30
Figure No 114	Passenger Lower Spine Y Acceleration vs. Time	B-31
Figure No. 115	Passenger Lower Spine Y Velocity vs. Time	B-31
Figure No 116	Passenger Lower Spine Y Redundant Acceleration vs. Time	B-31
Figure No 117	Passenger Lower Spine Y Redundant Velocity vs. Time	B-31
Figure No 118	Passenger Pelvis Y Acceleration vs. Time	B-32
Figure No 119	Passenger Pelvis Y Velocity vs. Time	B-32
Figure No 120	Passenger Pelvis Y Redundant Acceleration vs Time	B-32
Figure No 121	Passenger Pelvis Y Redundant Velocity vs Time	B-32



48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

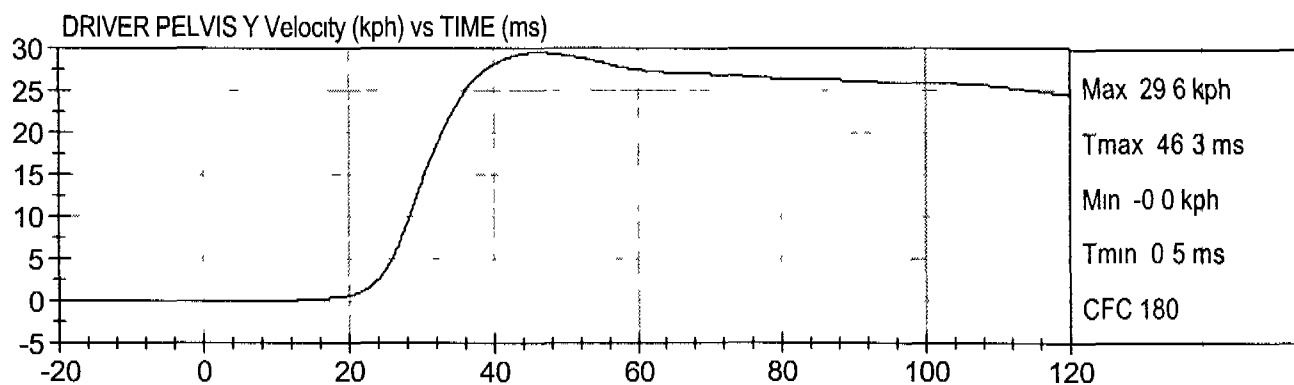
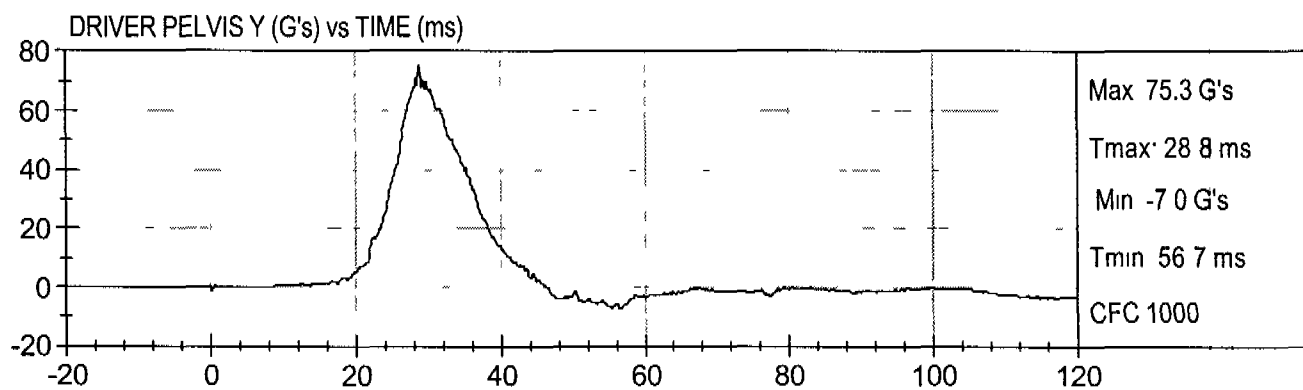
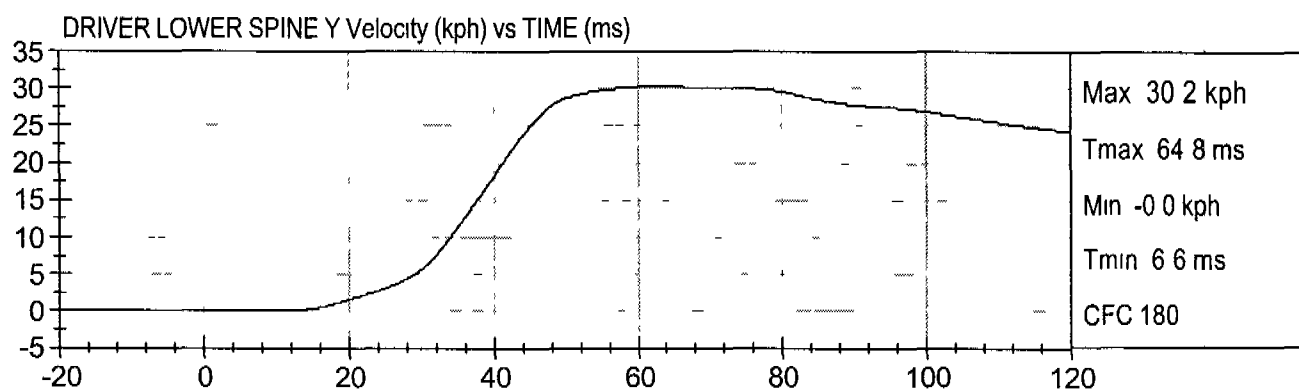
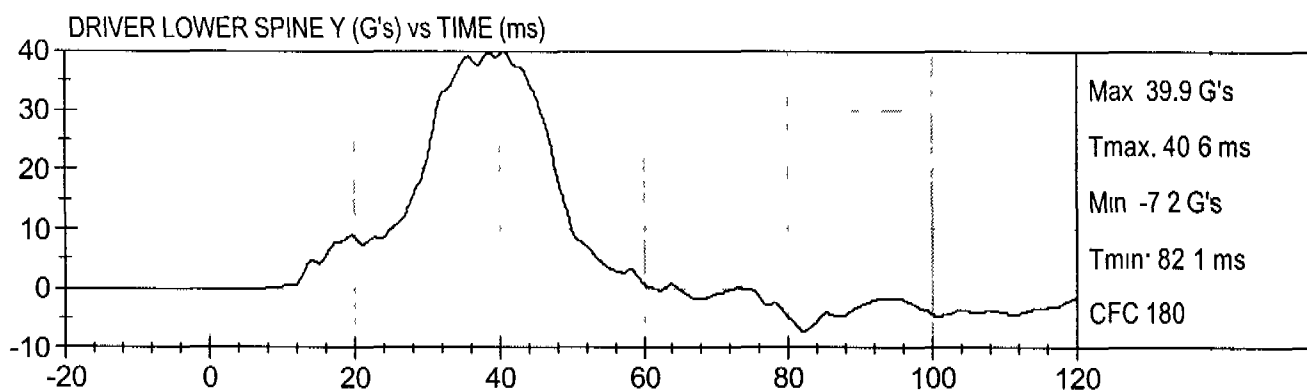
Test Date: 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

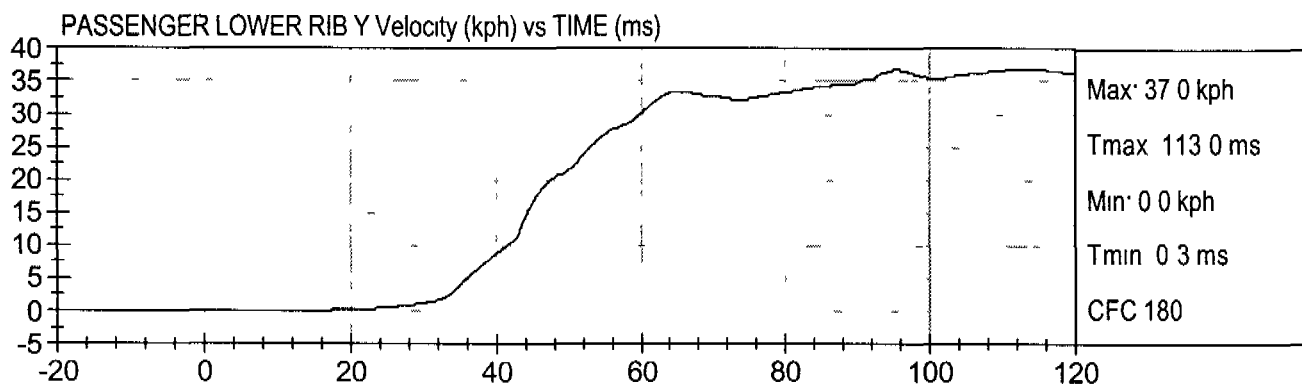
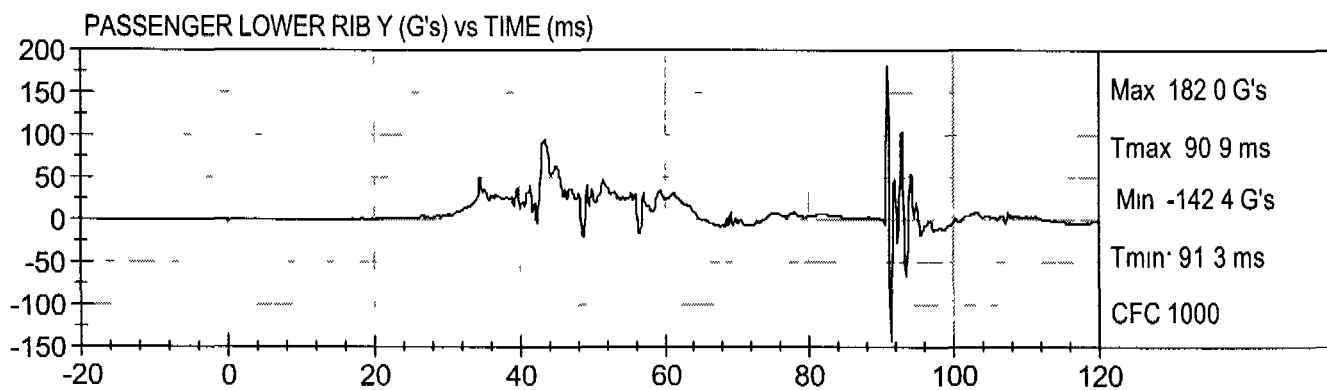
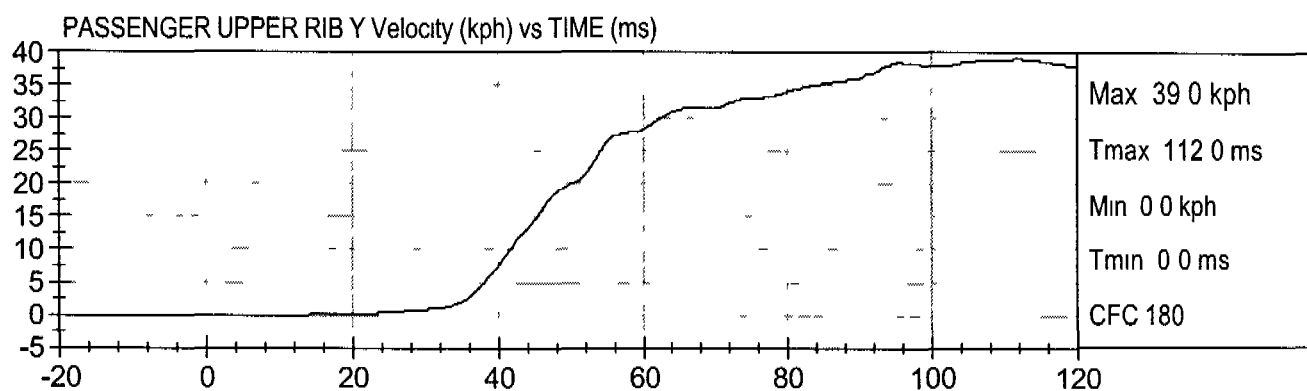
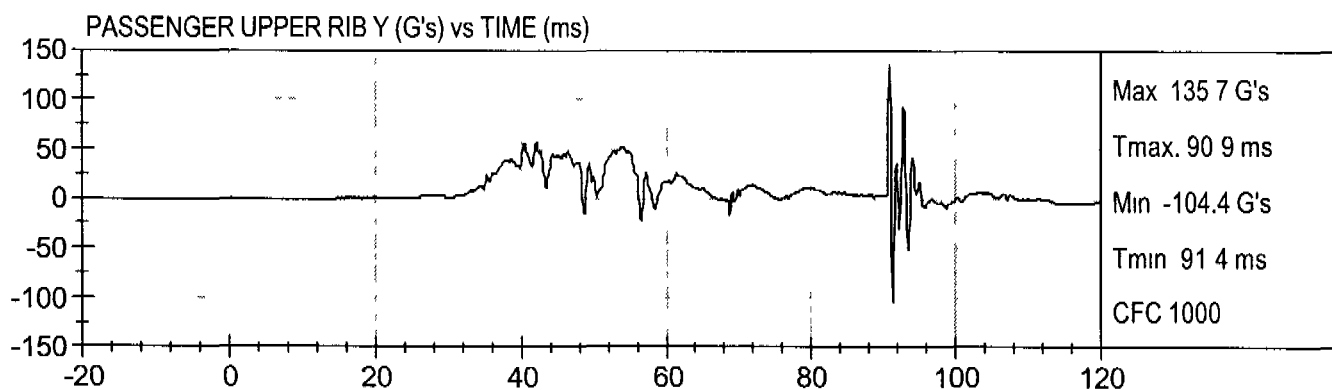
Test Date: 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

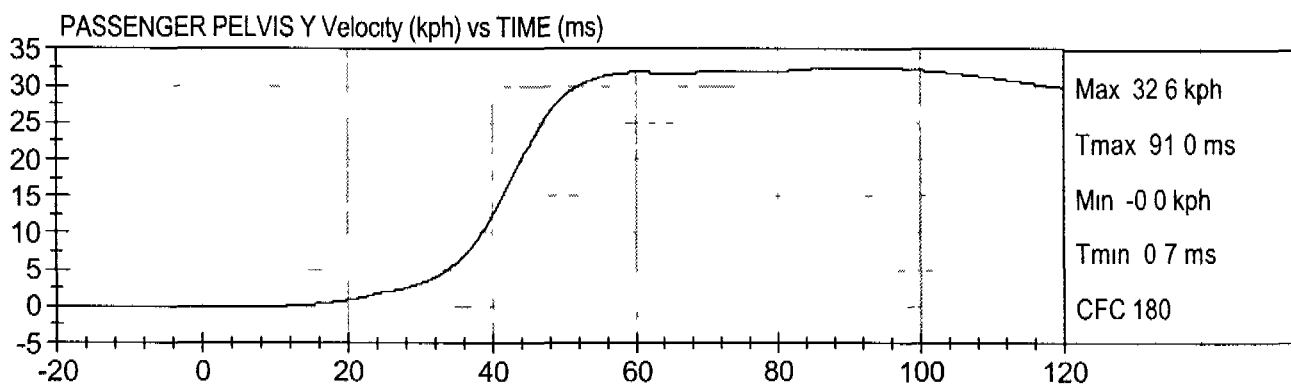
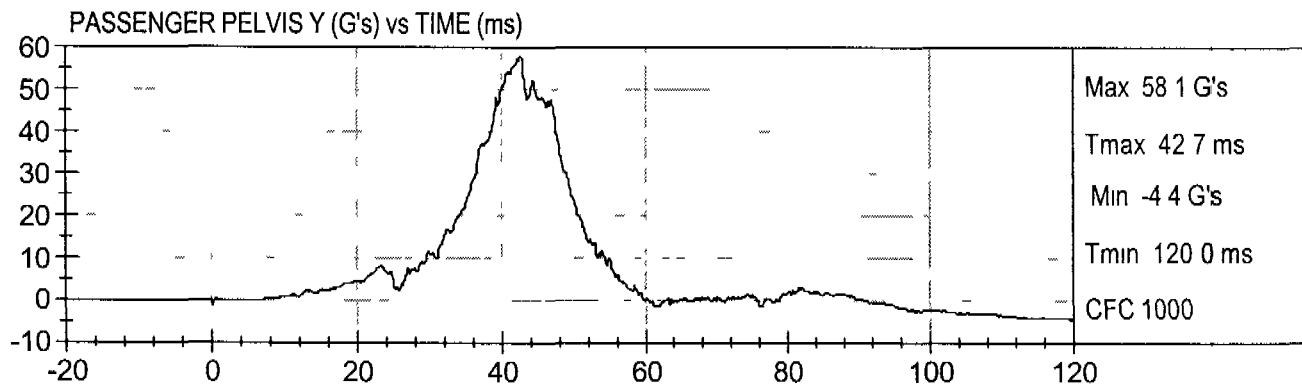
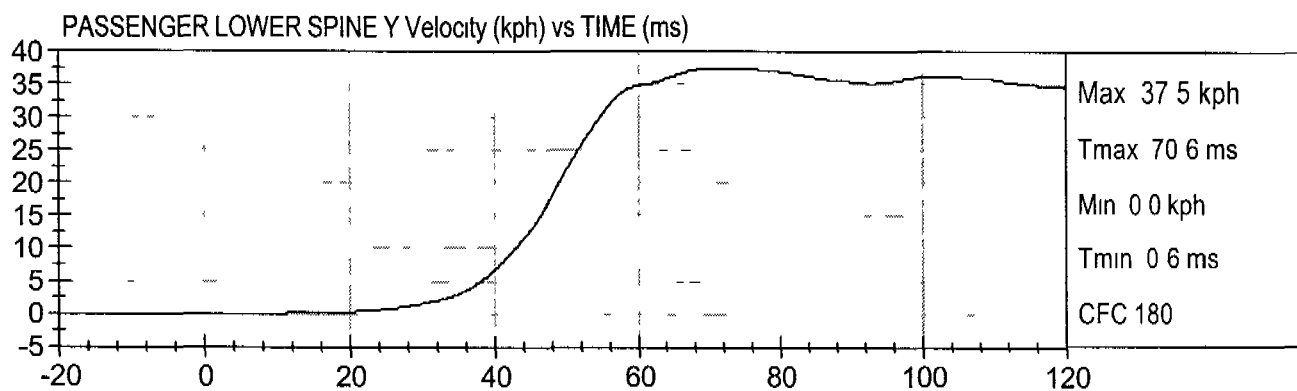
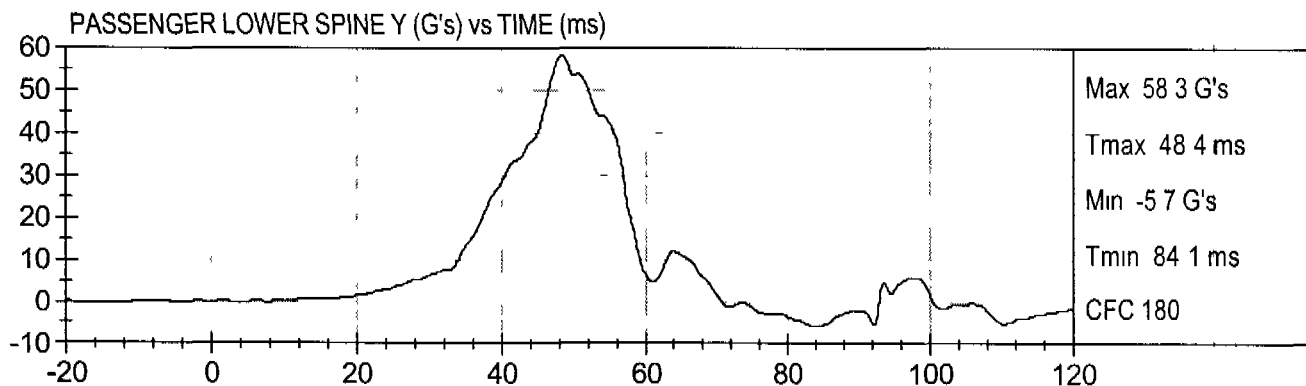
Test Date 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

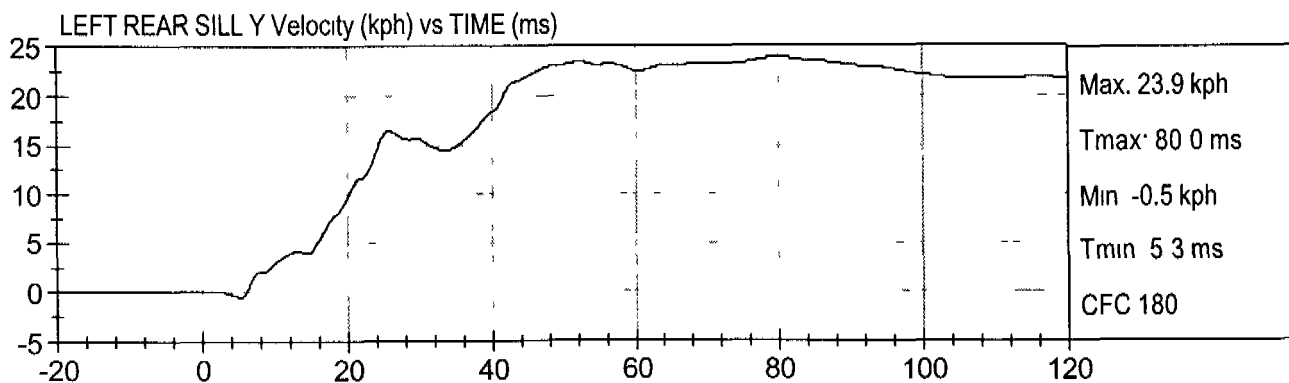
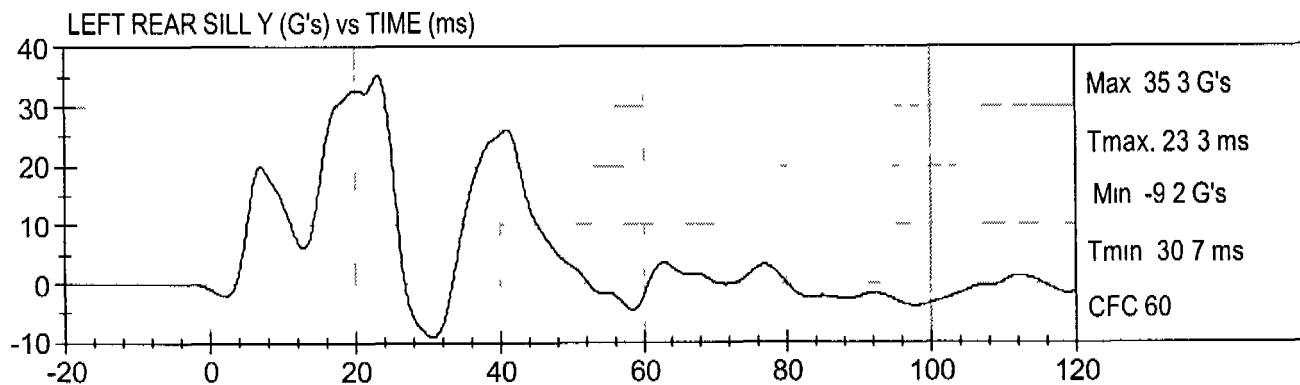
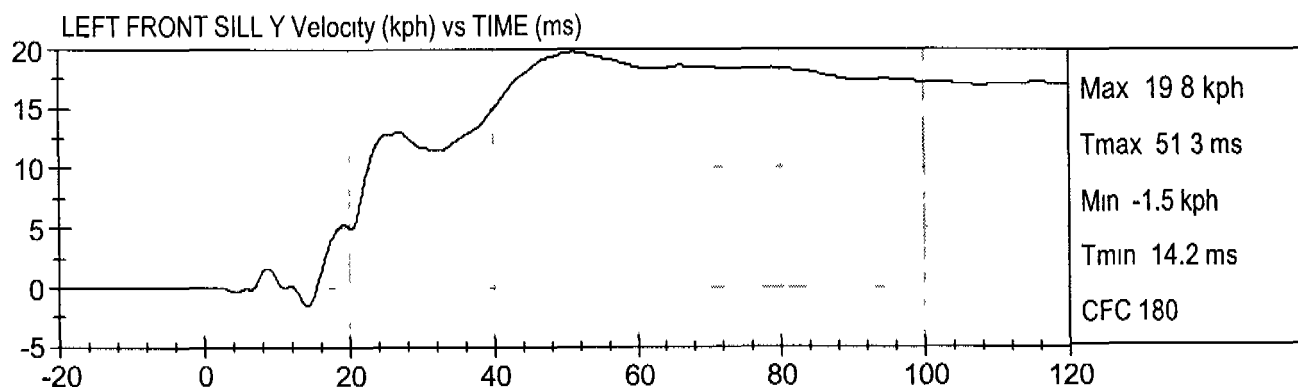
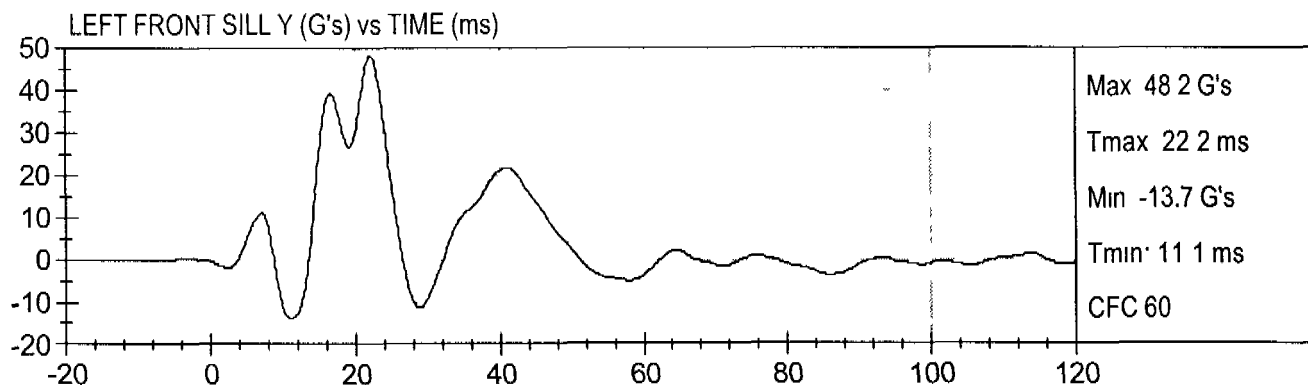
Test Date 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

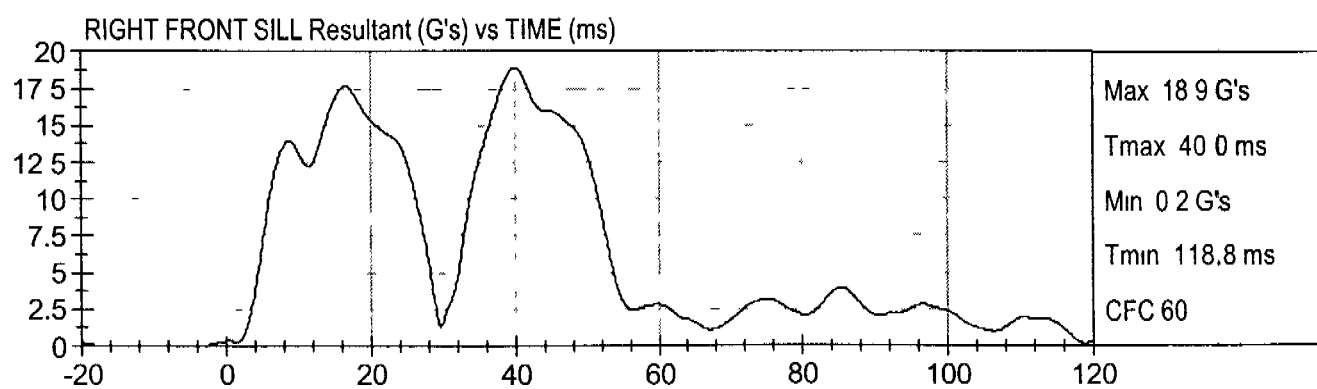
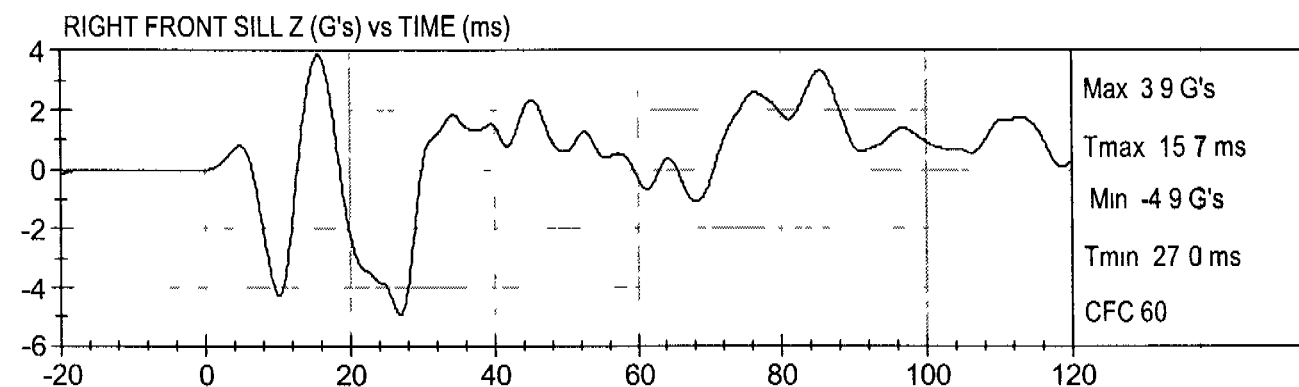
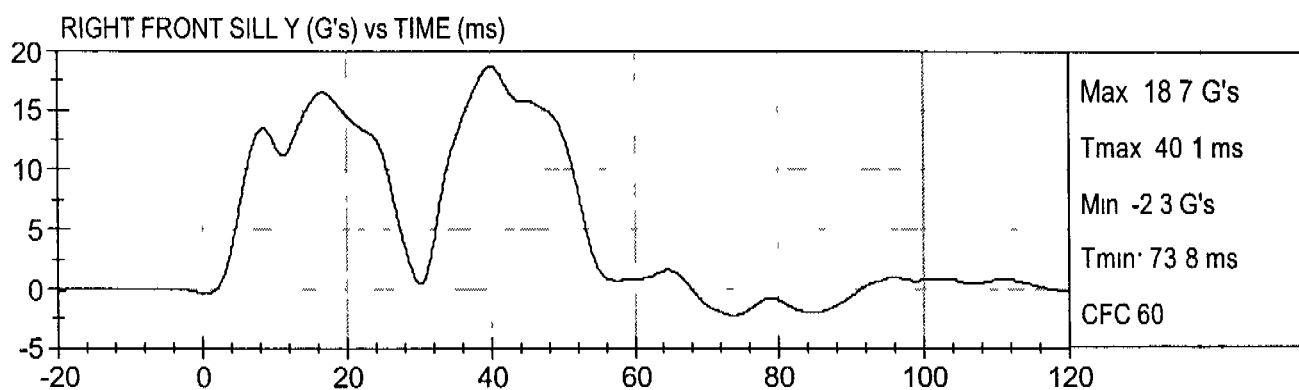
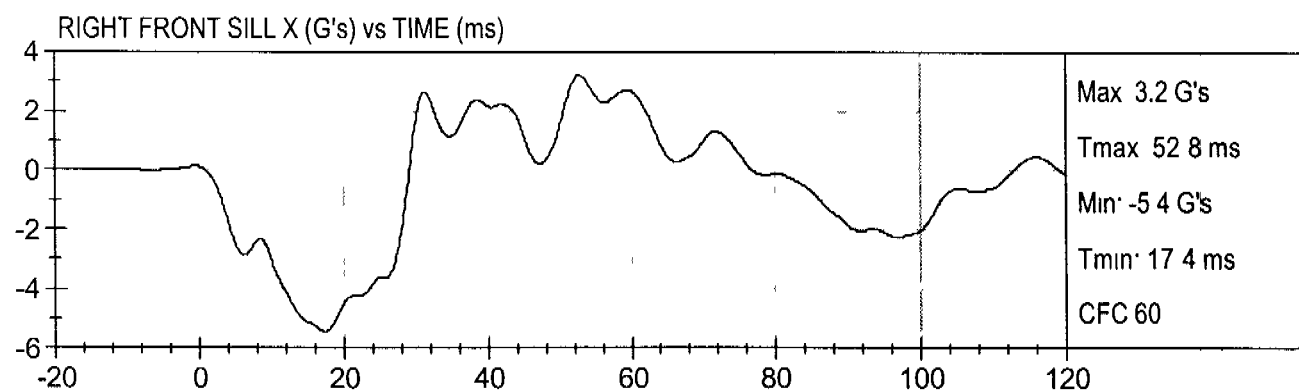
Test Date 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

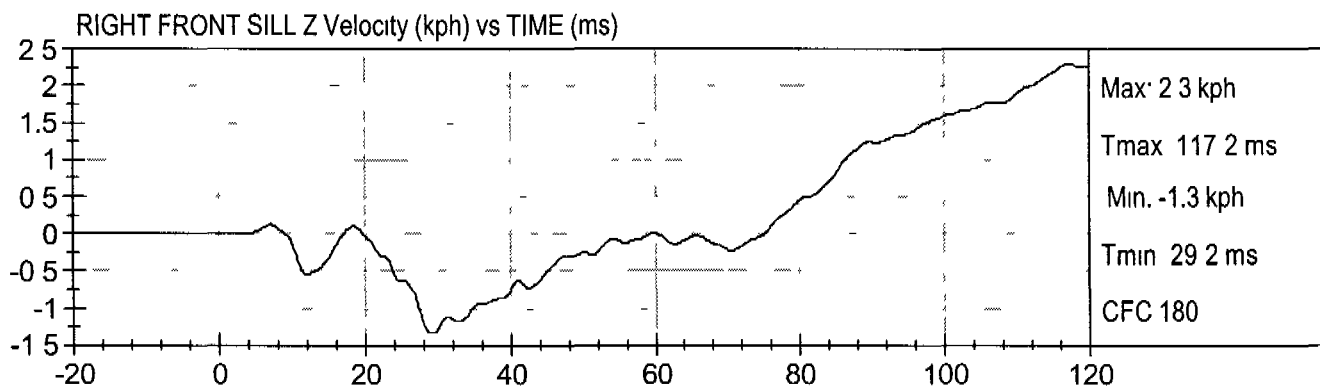
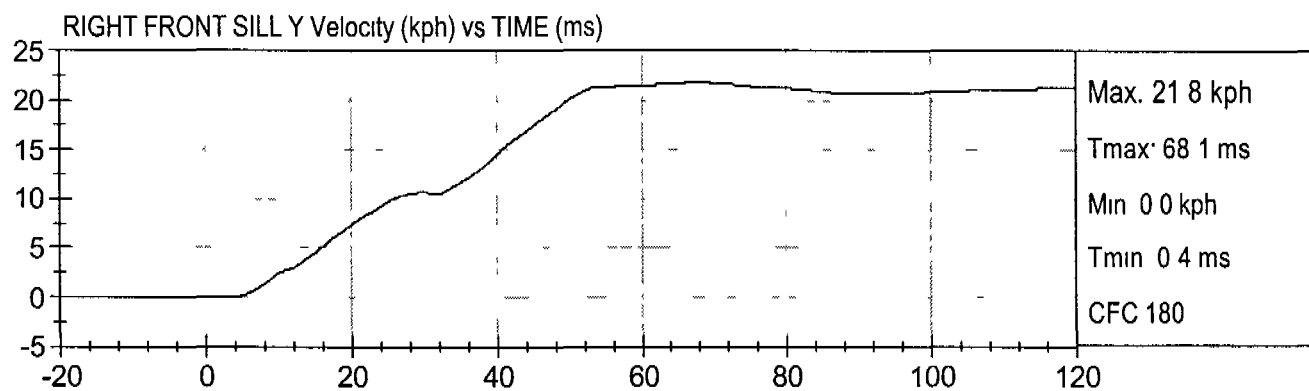
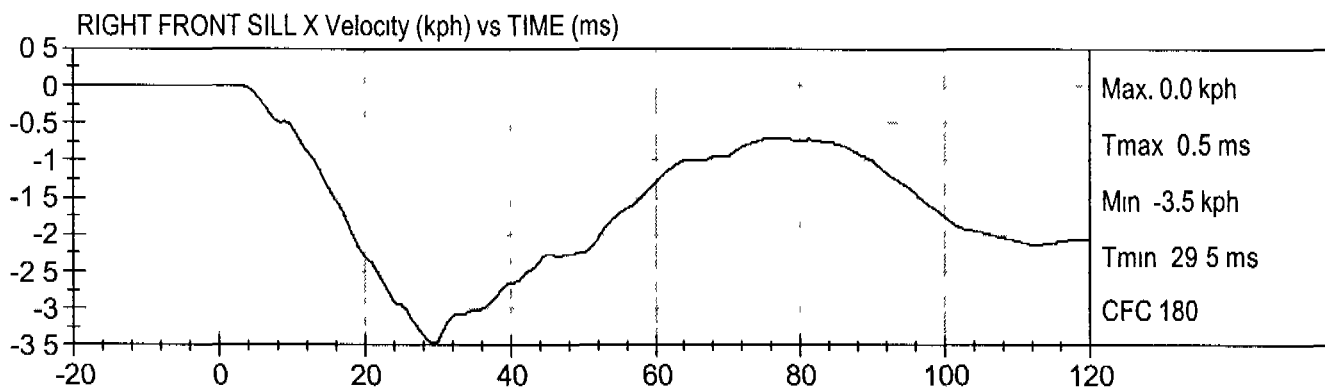
Test Date: 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

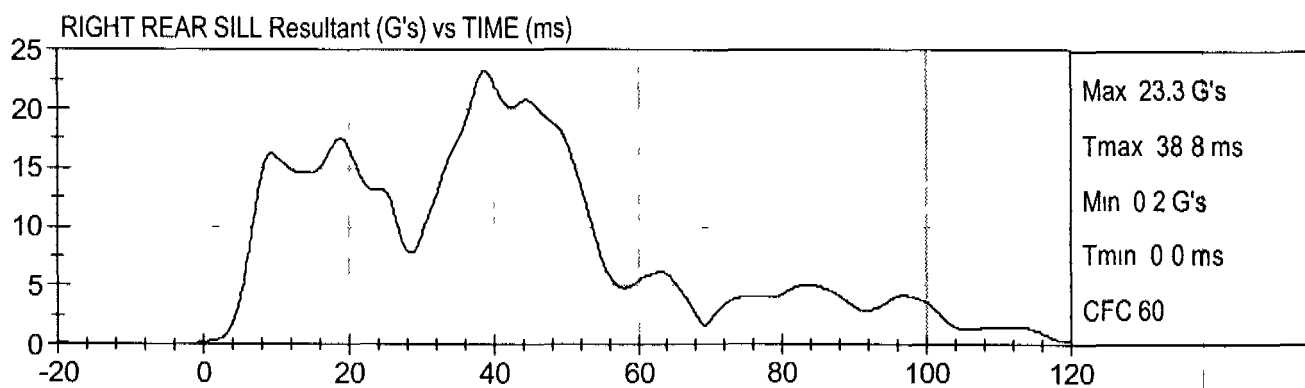
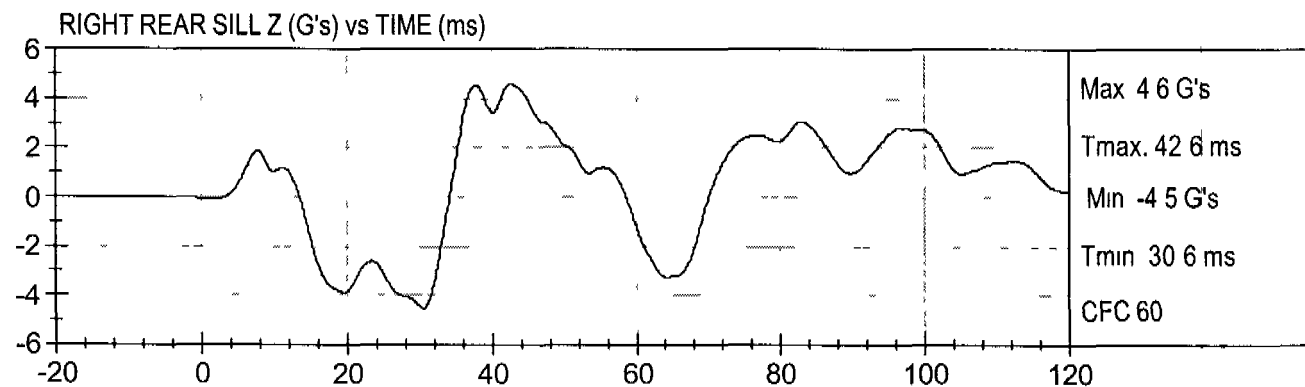
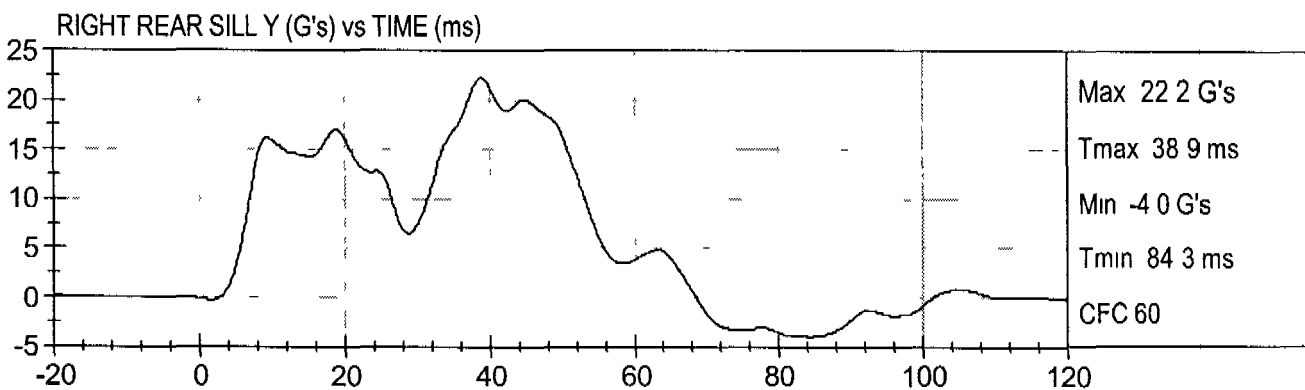
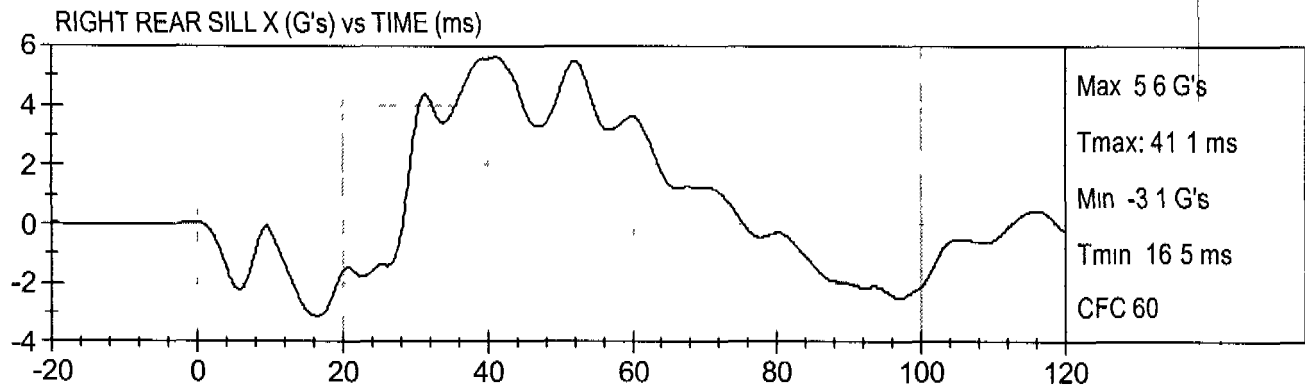
Test Date 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

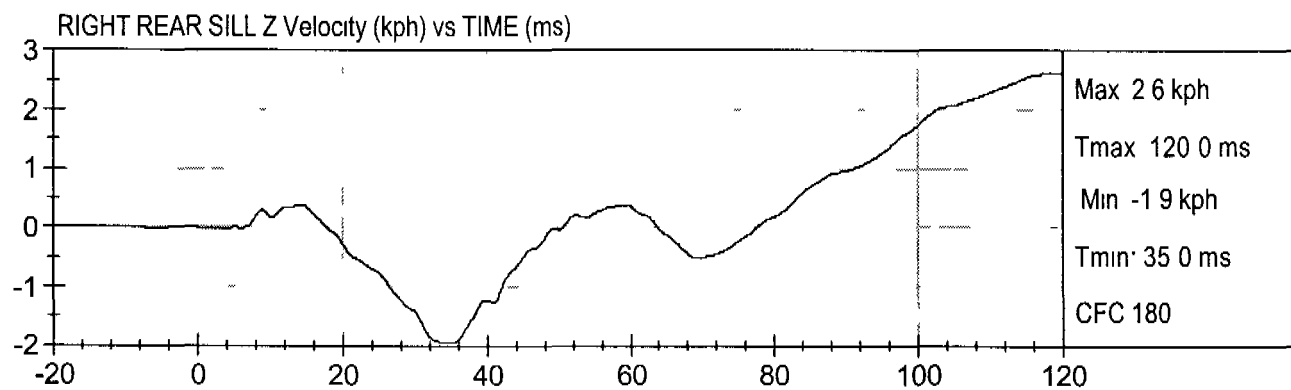
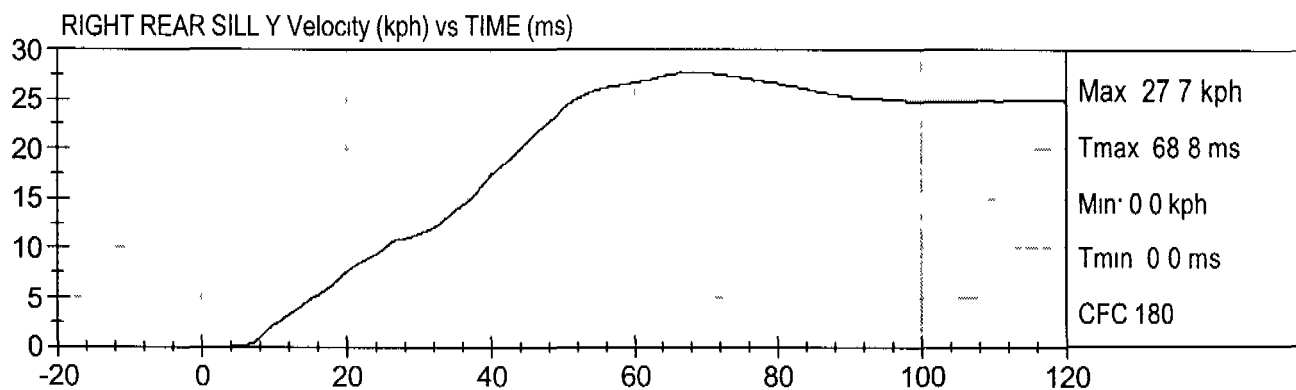
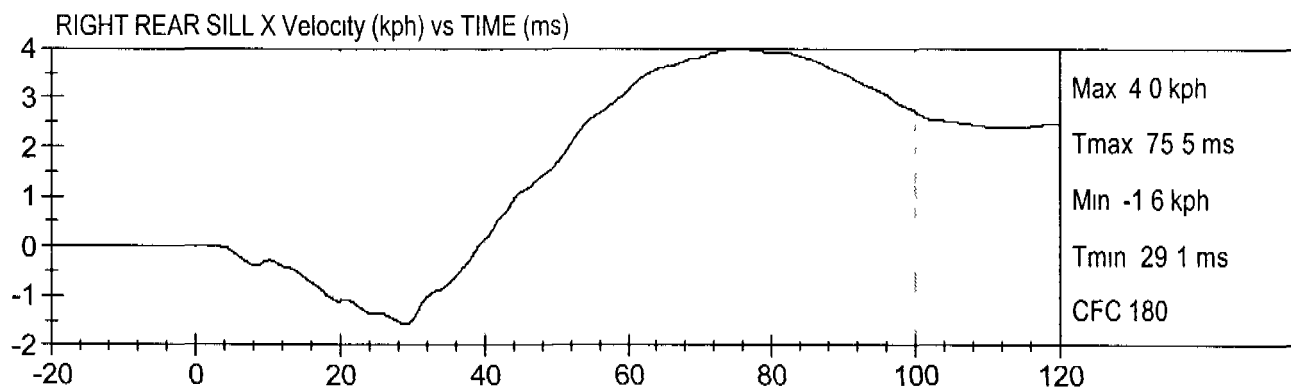
Test Date 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

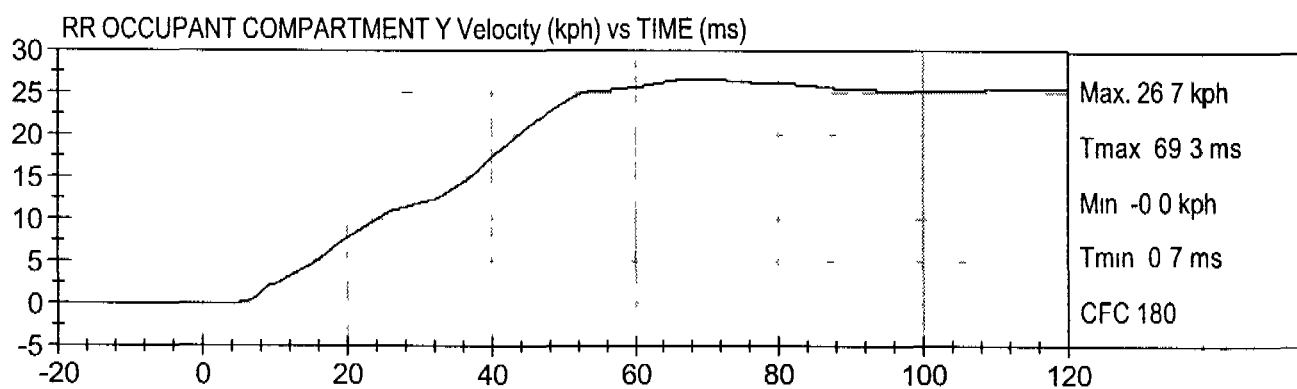
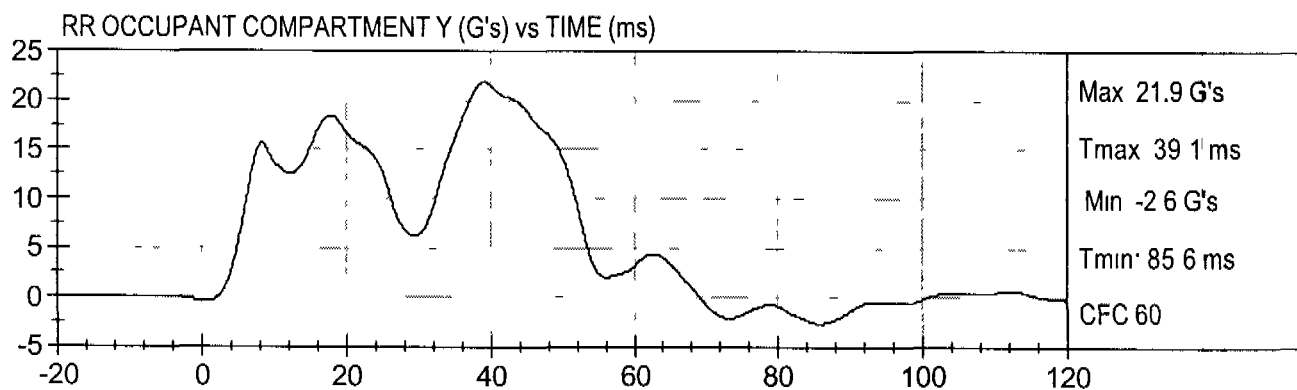
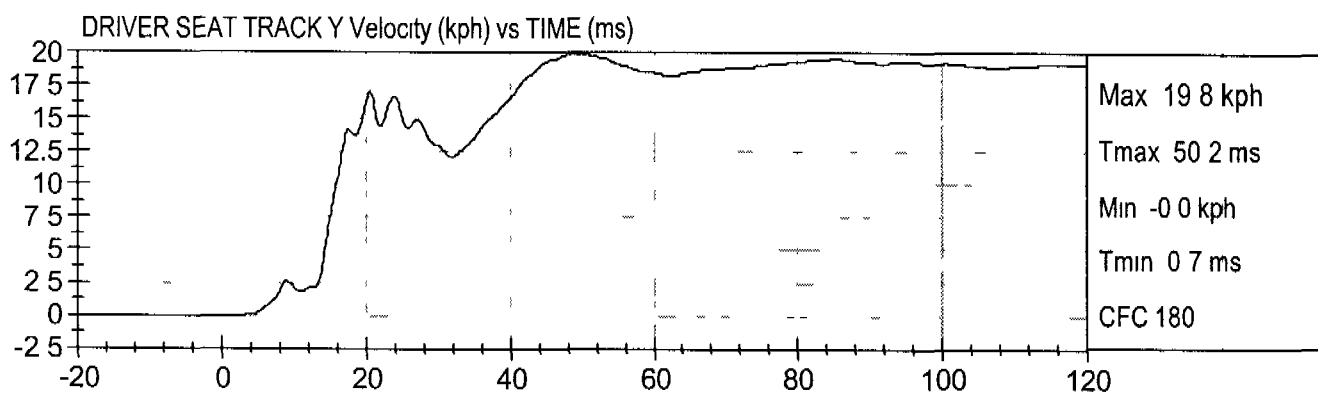
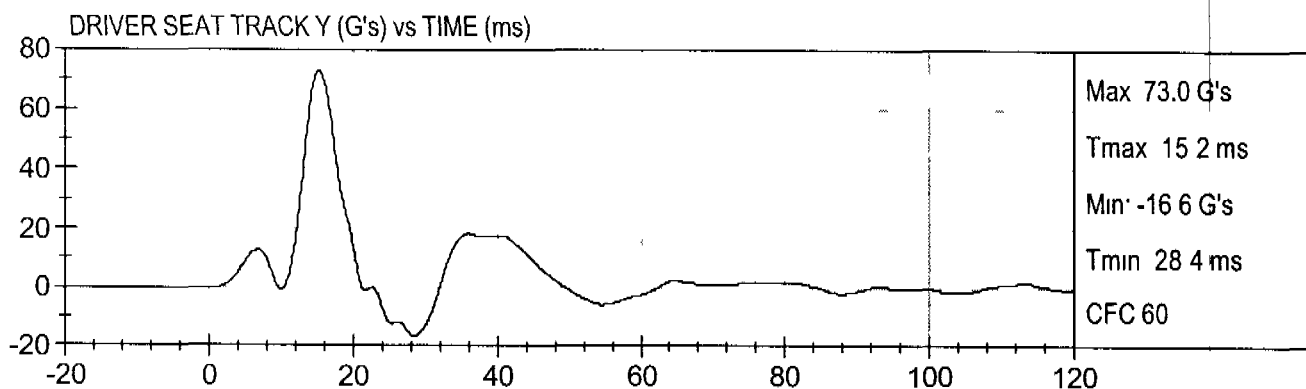
Test Date 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

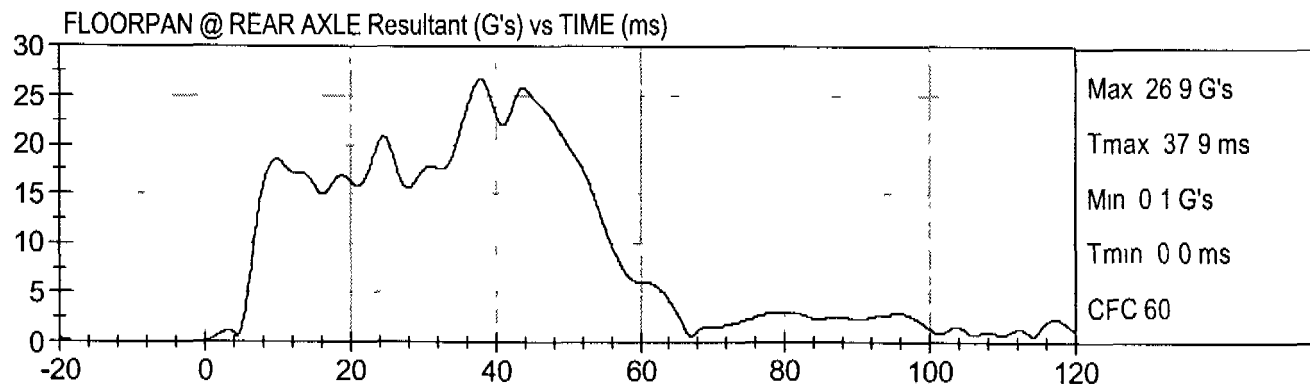
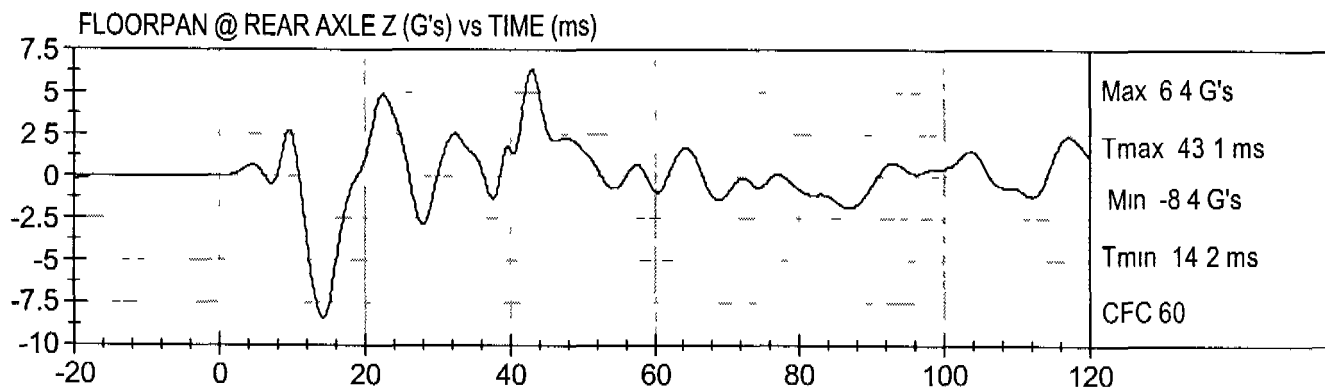
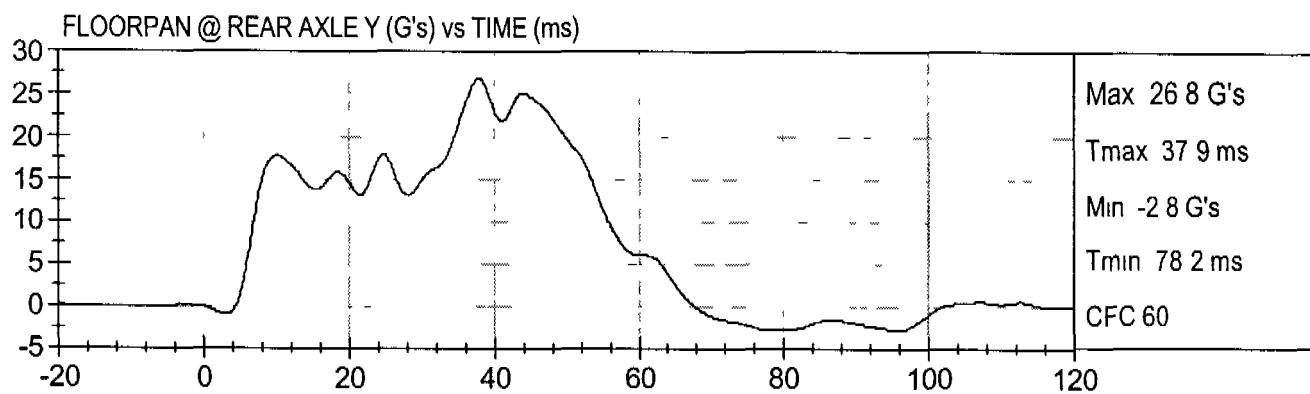
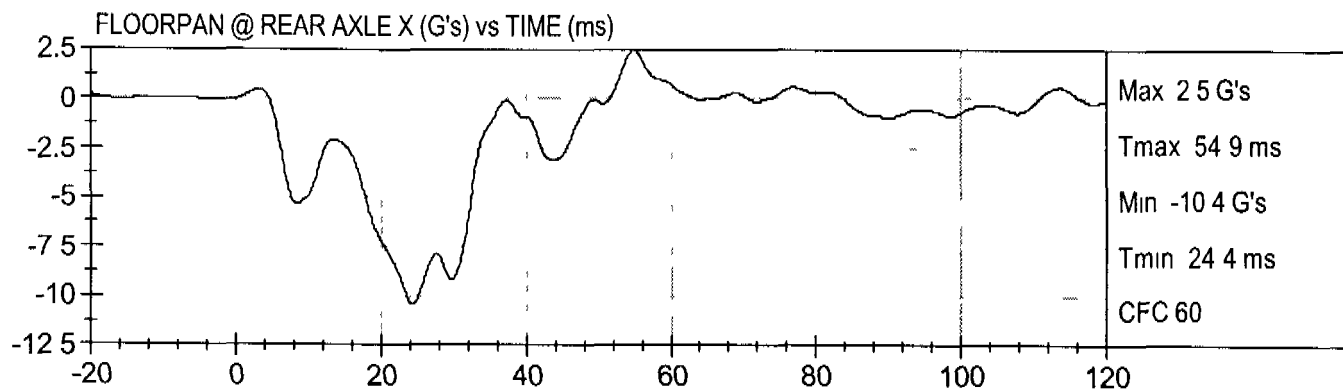
Test Date: 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

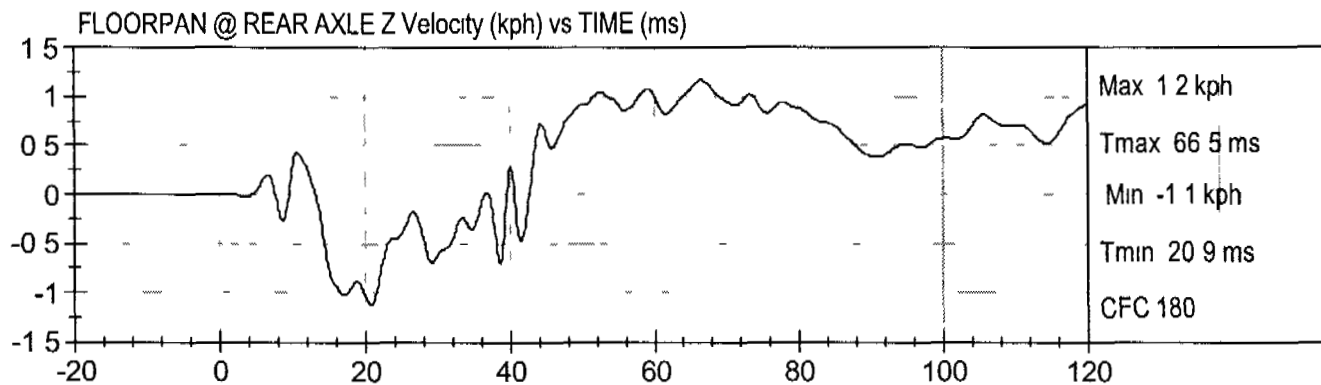
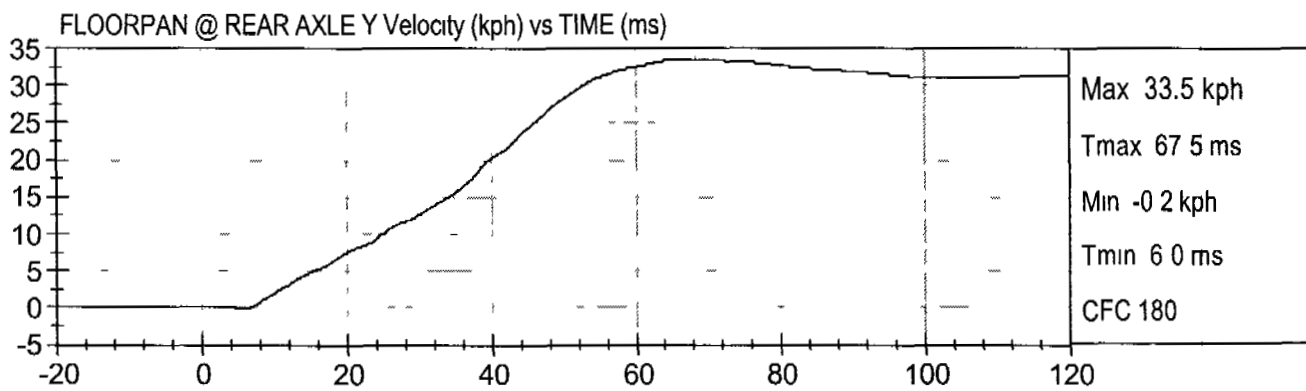
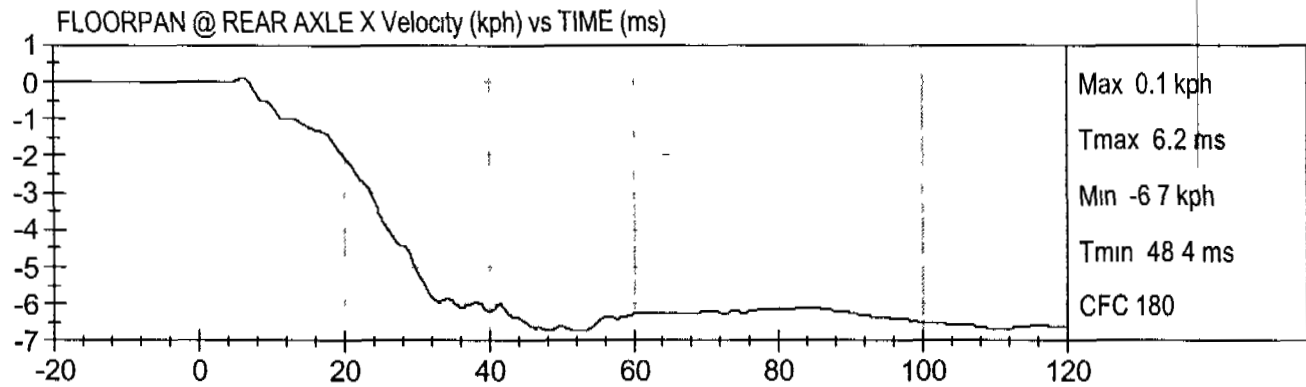
Test Date 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

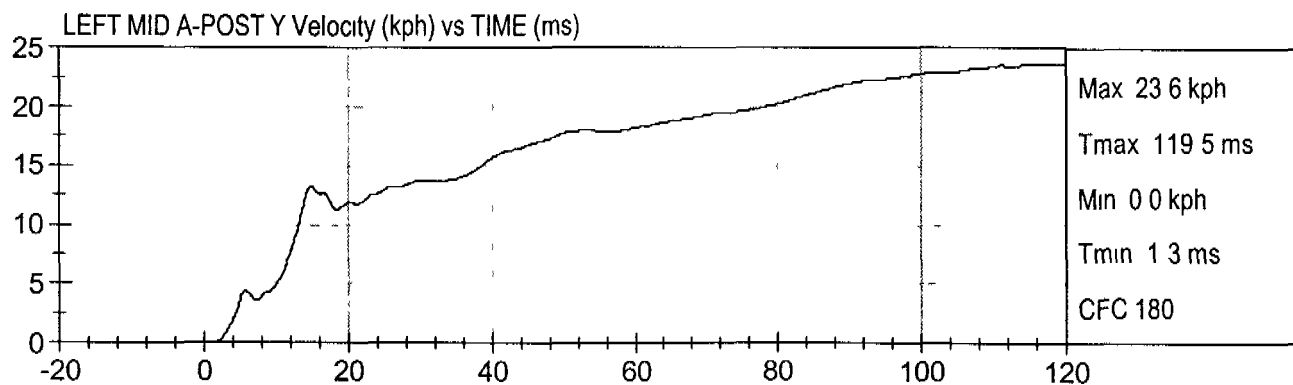
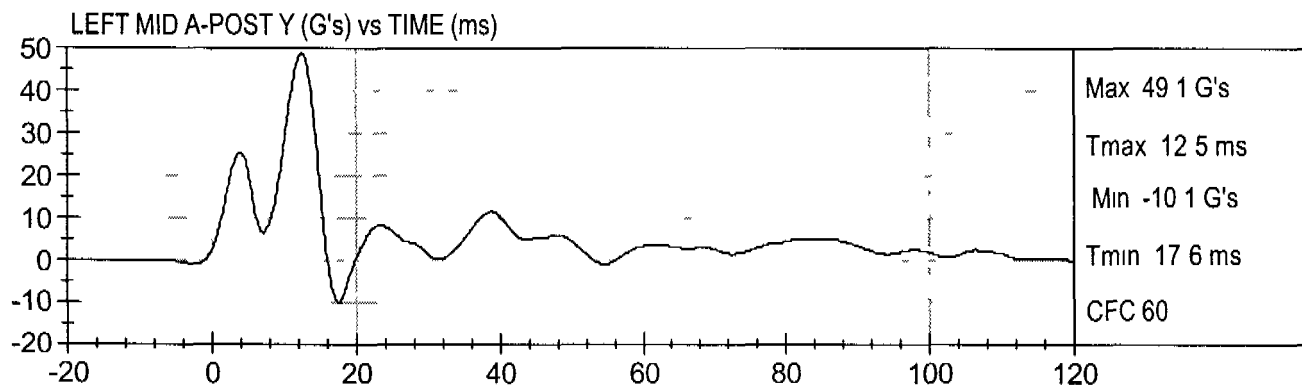
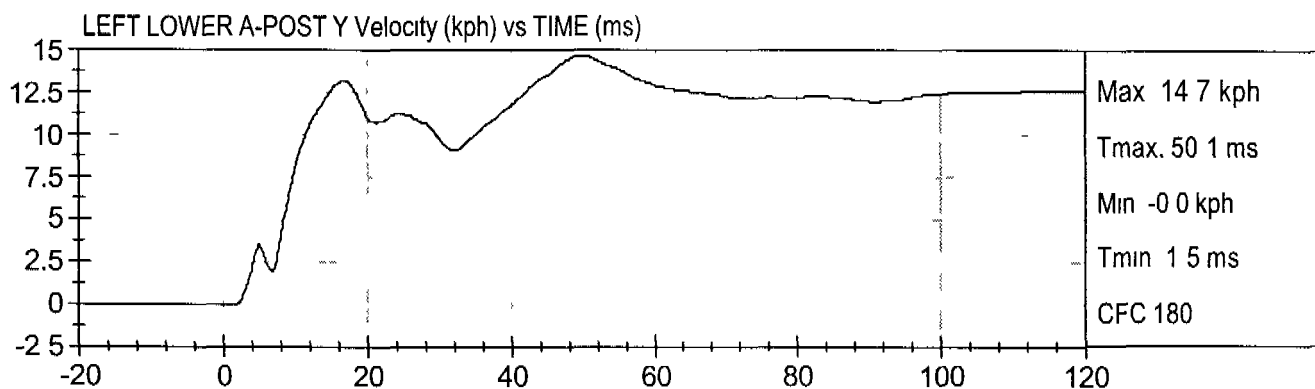
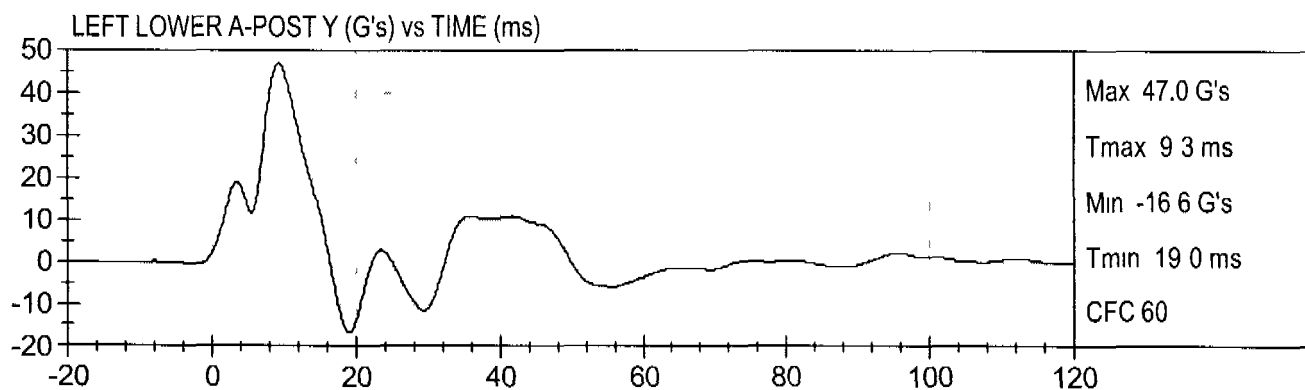
Test Date 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

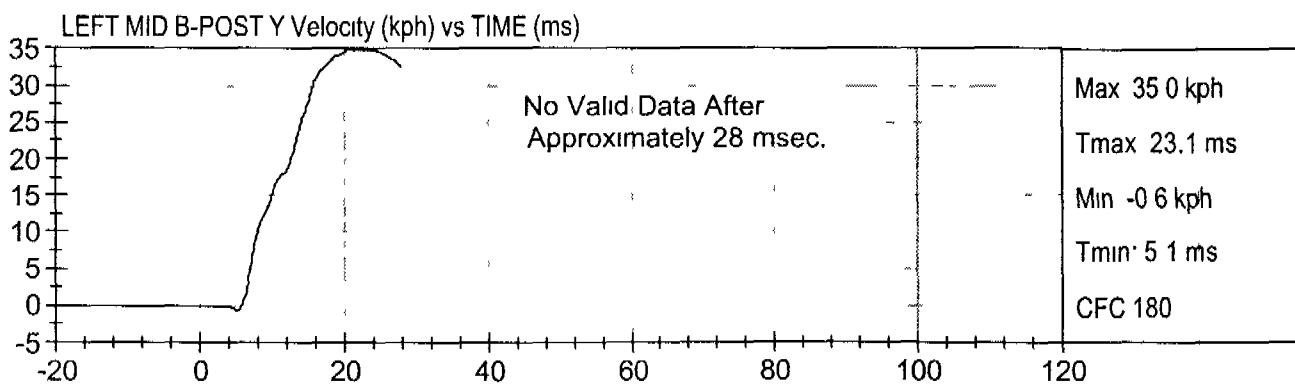
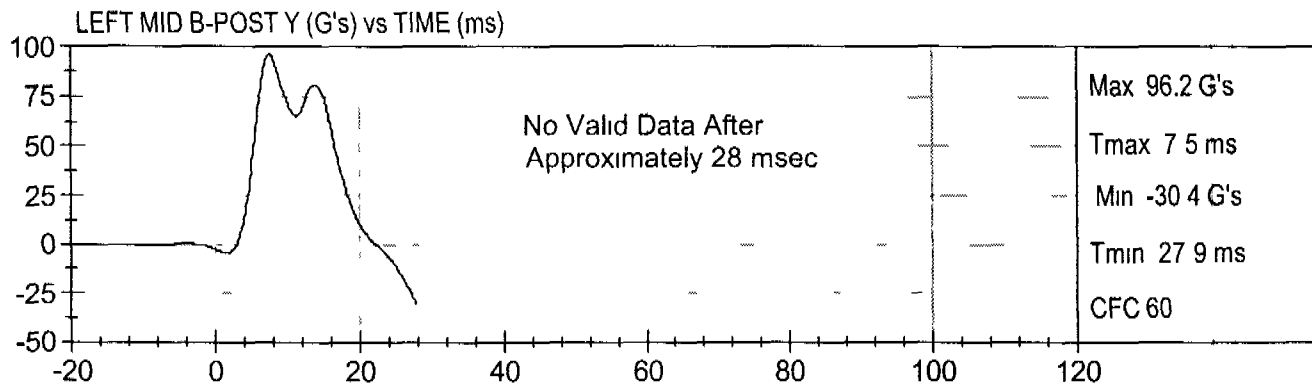
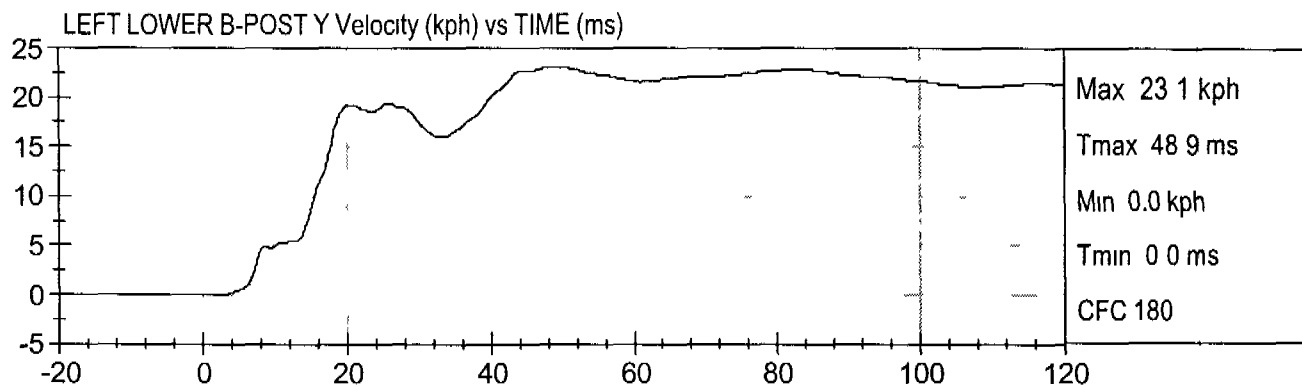
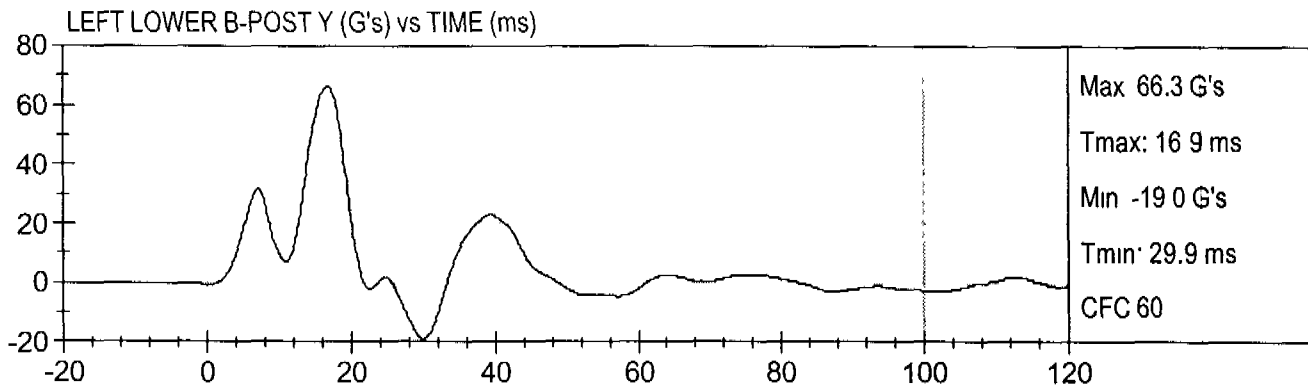
Test Date 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

Test Date 4/09/02
Speed 32.7 mph (52.6 km/h)

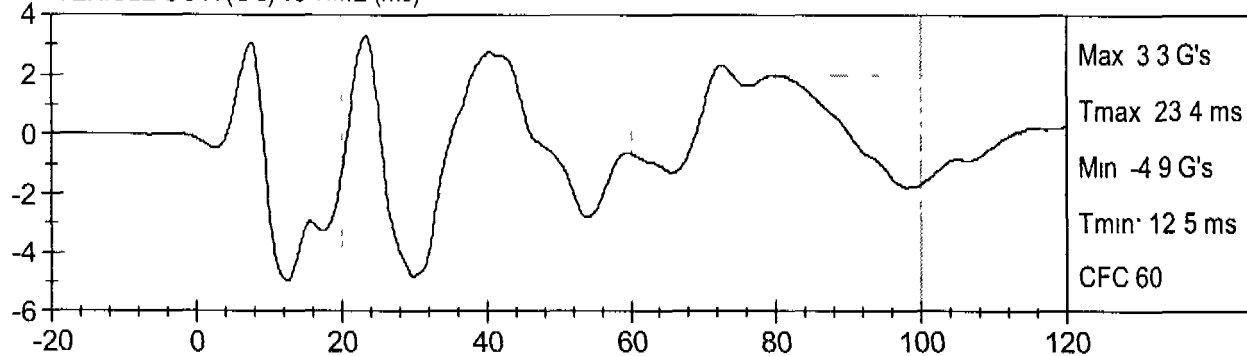




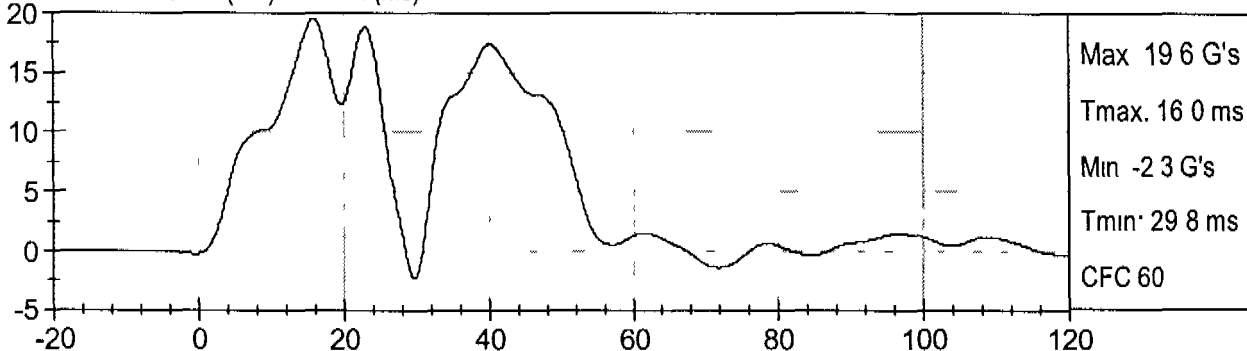
48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

Test Date: 4/09/02
Speed 32.7 mph (52.6 km/h)

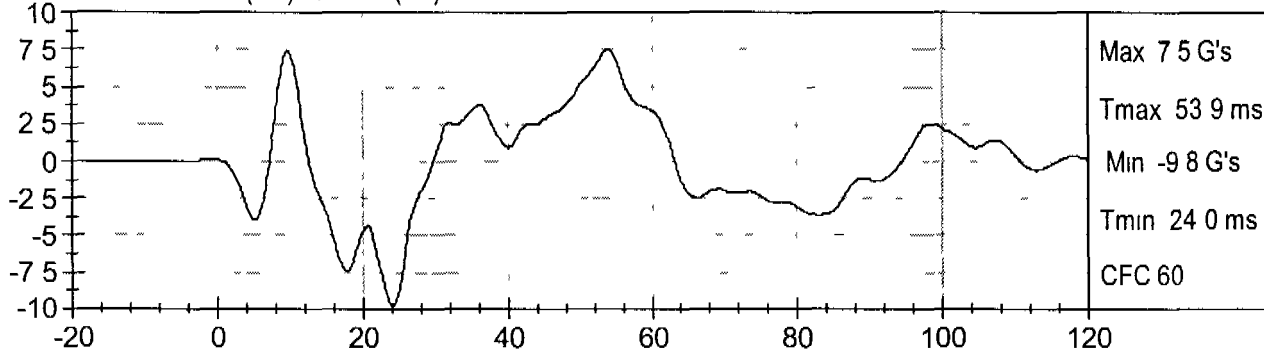
VEHICLE CG X (G's) vs TIME (ms)



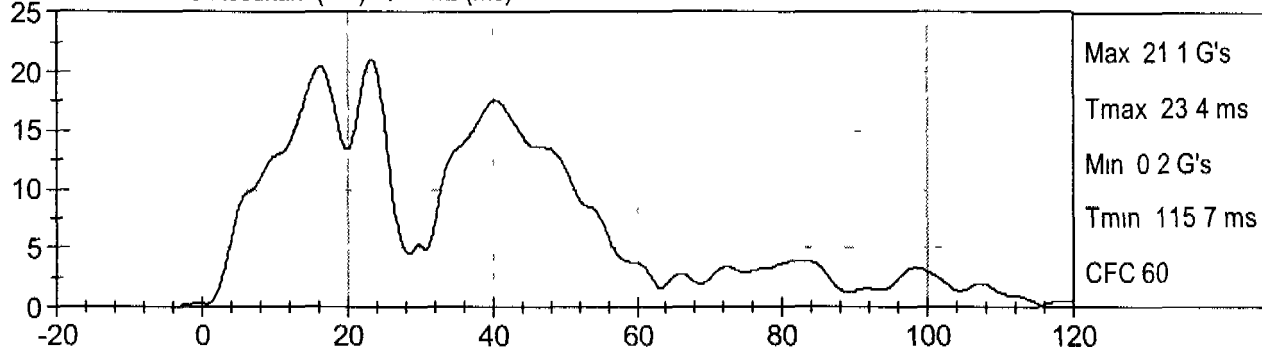
VEHICLE CG Y (G's) vs TIME (ms)



VEHICLE CG Z (G's) vs TIME (ms)



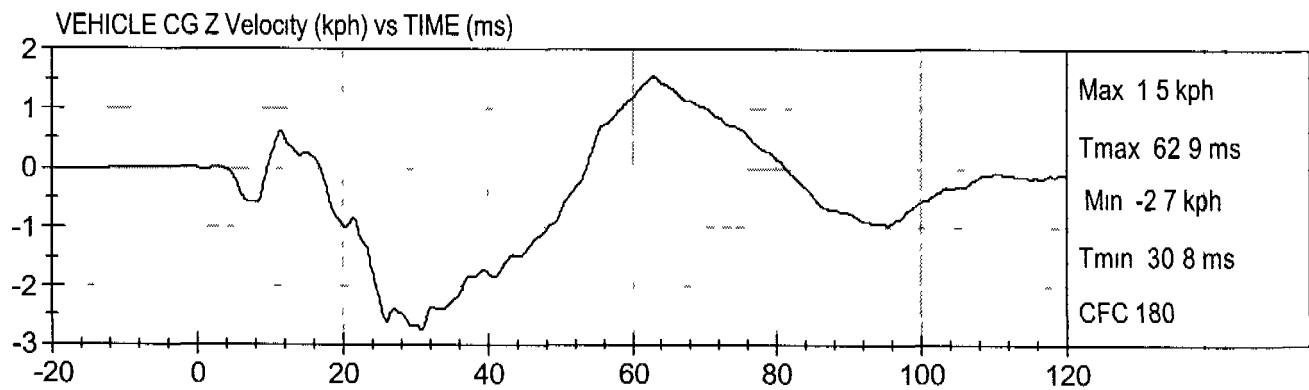
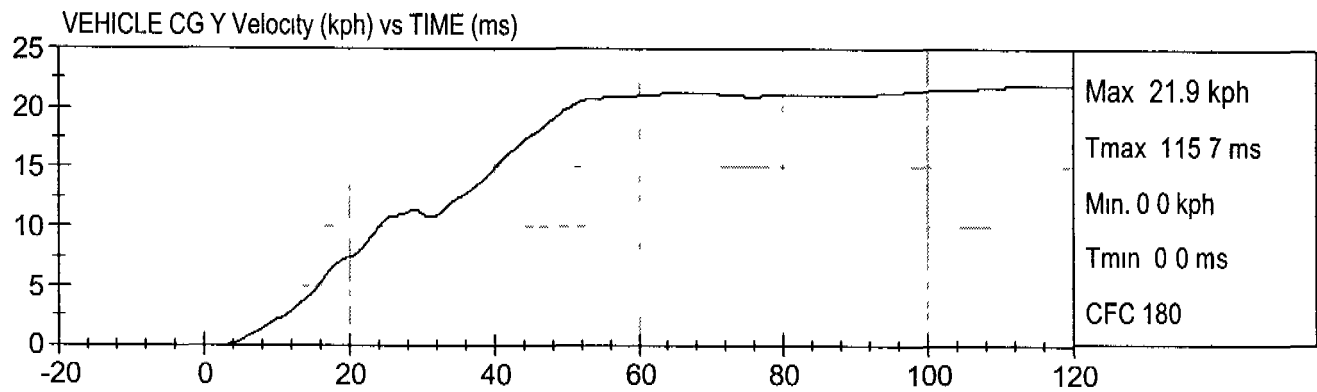
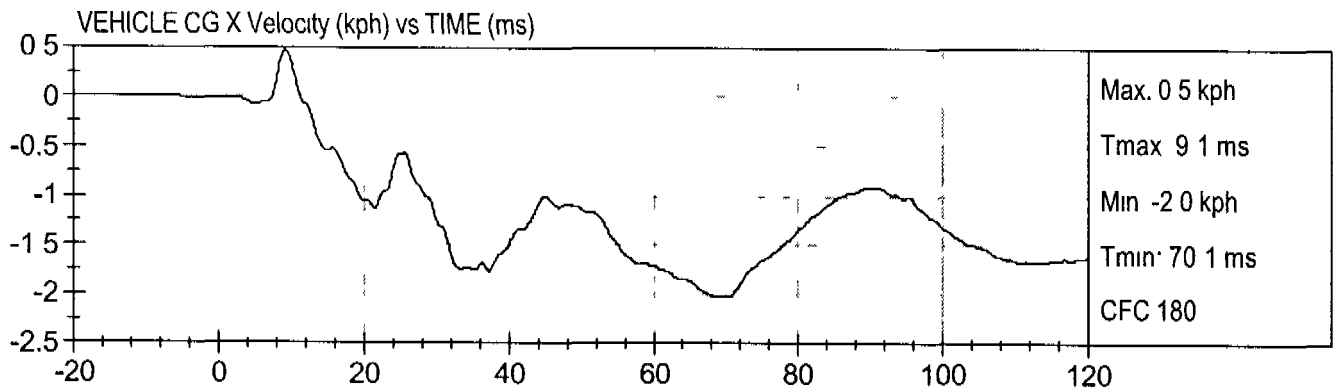
VEHICLE CG Resultant (G's) vs TIME (ms)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

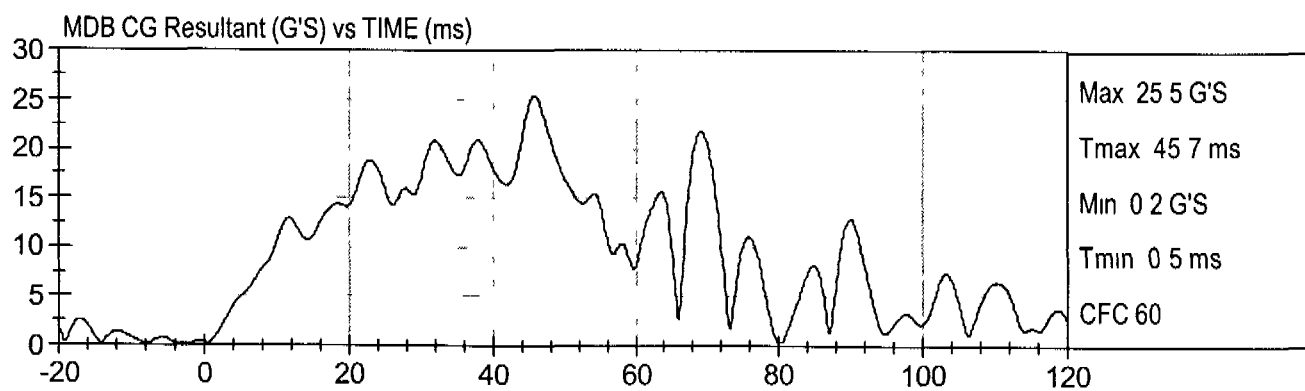
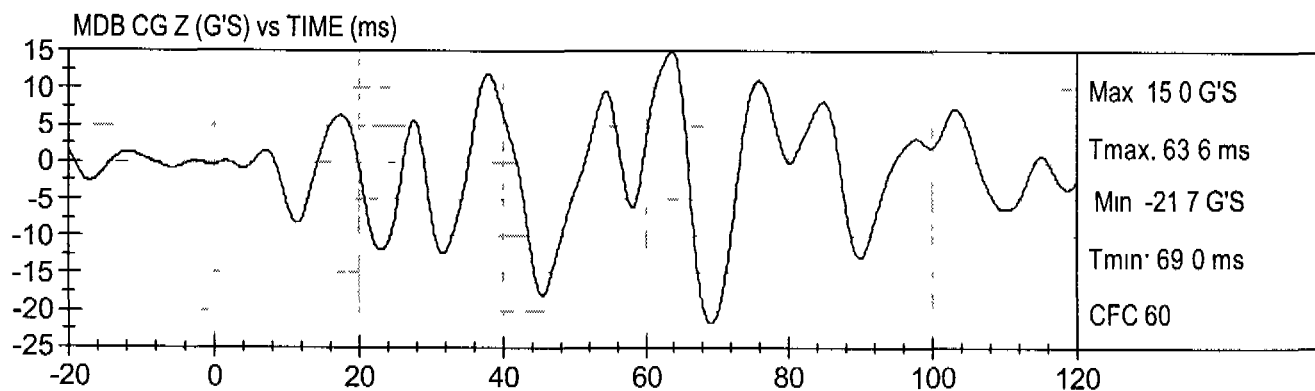
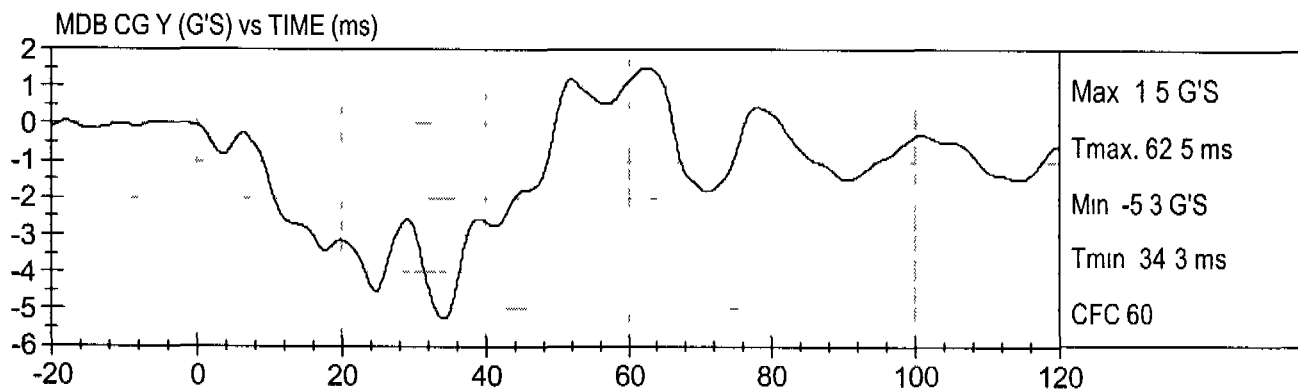
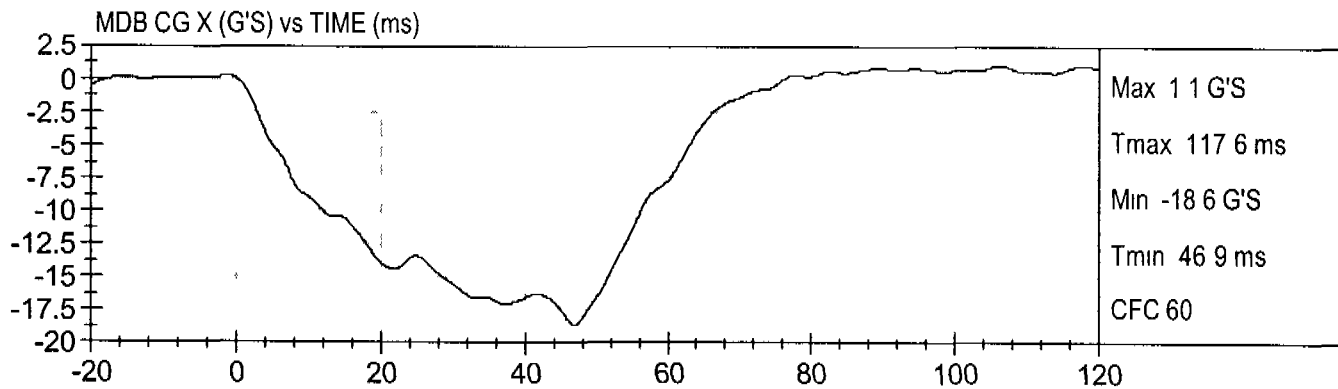
Test Date: 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

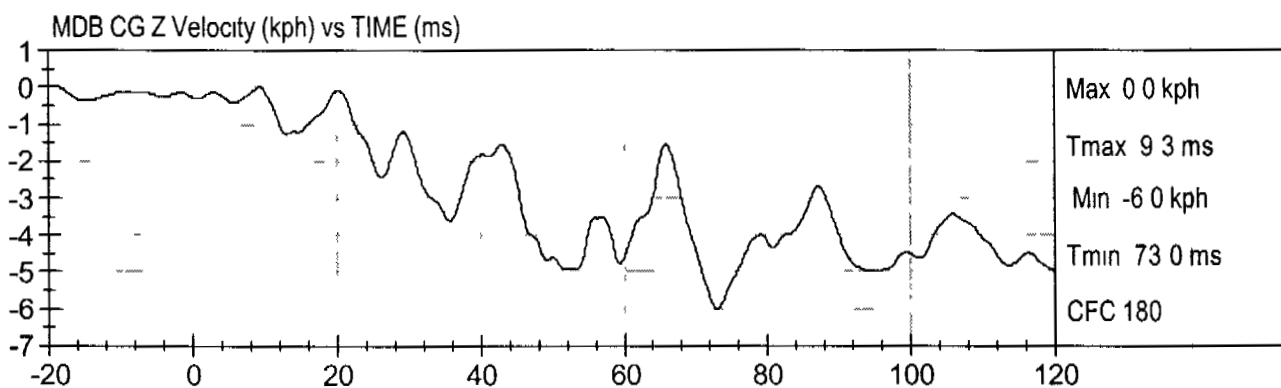
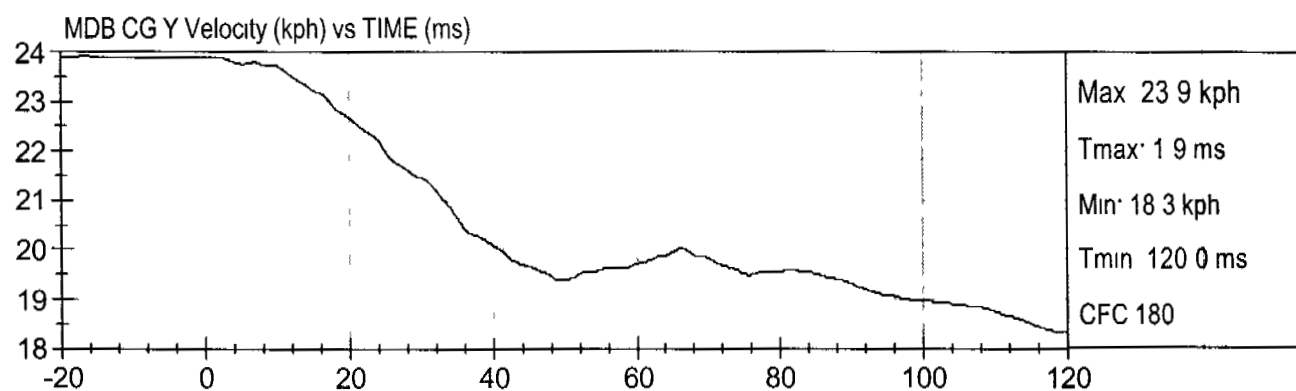
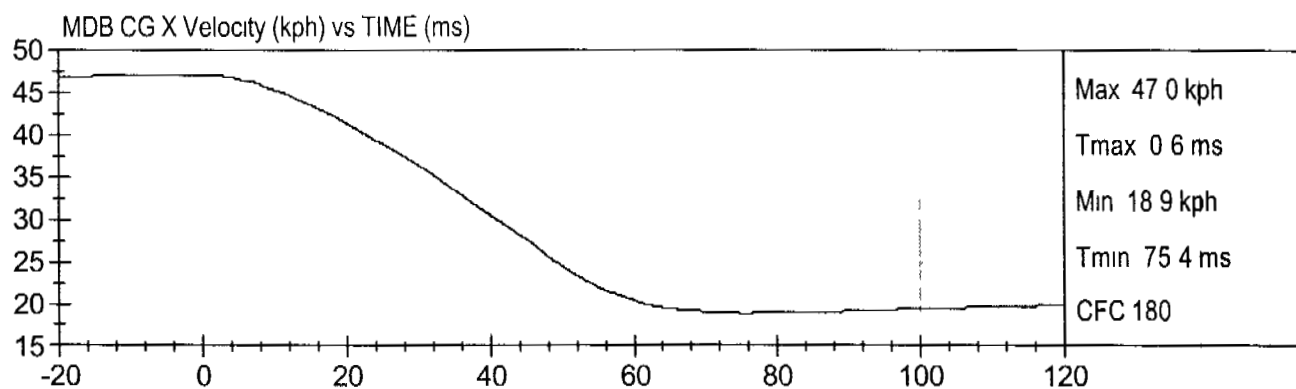
Test Date 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

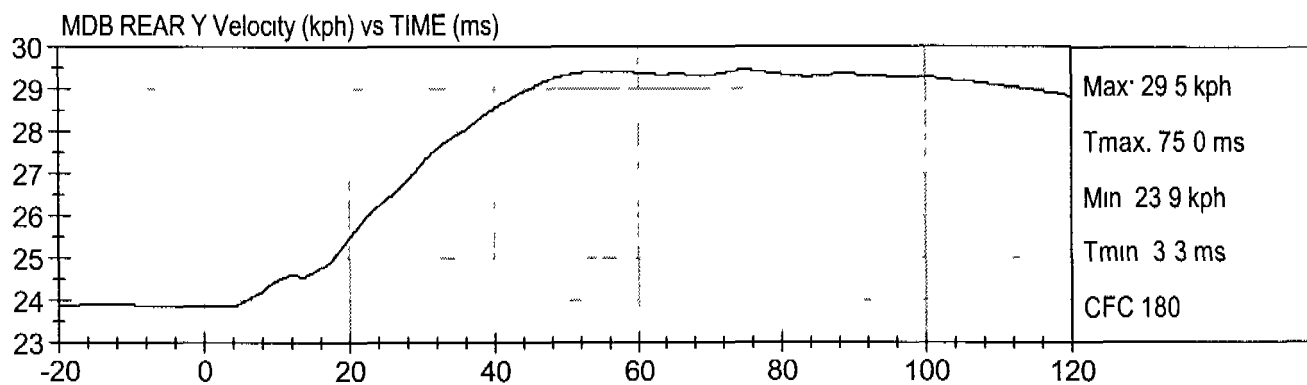
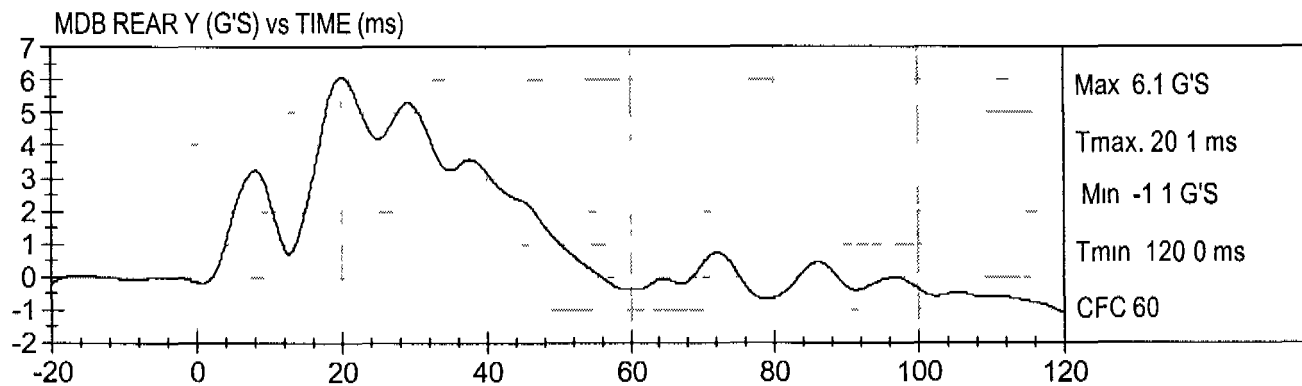
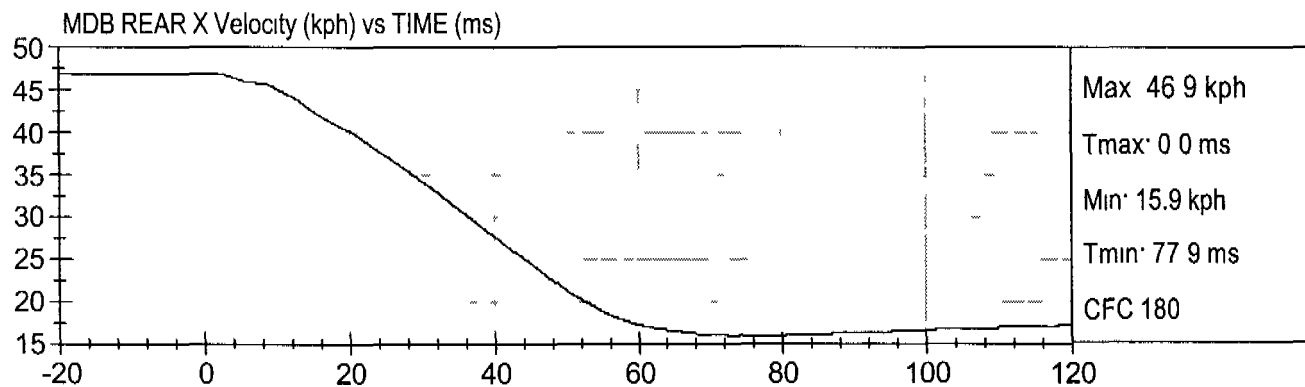
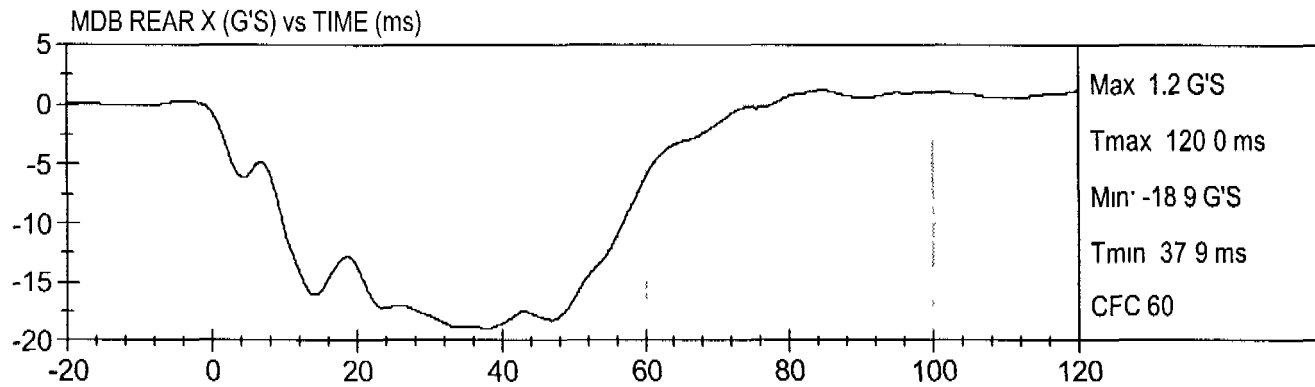
Test Date 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

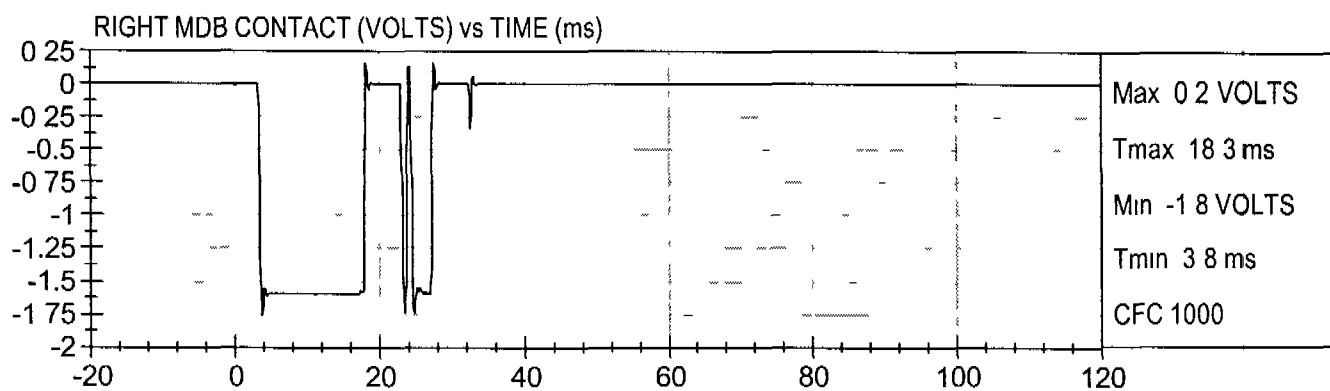
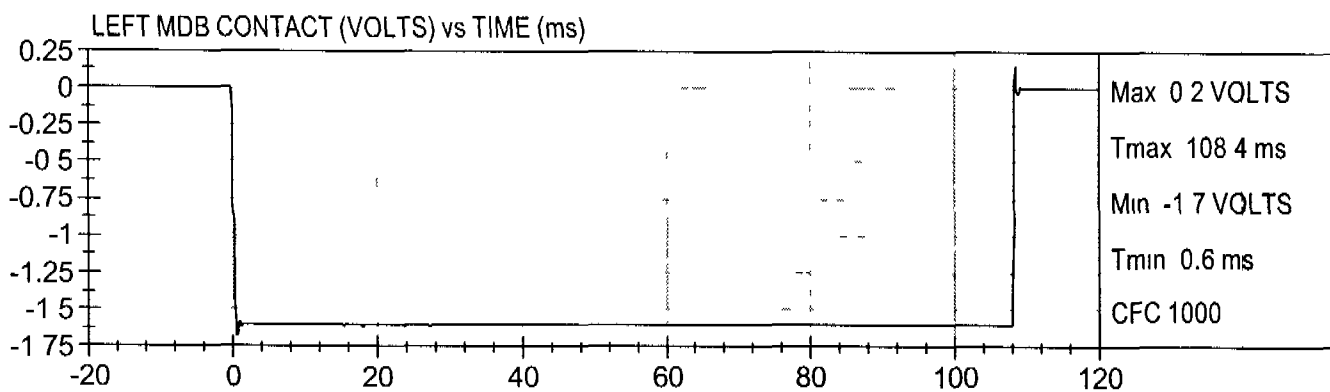
Test Date 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

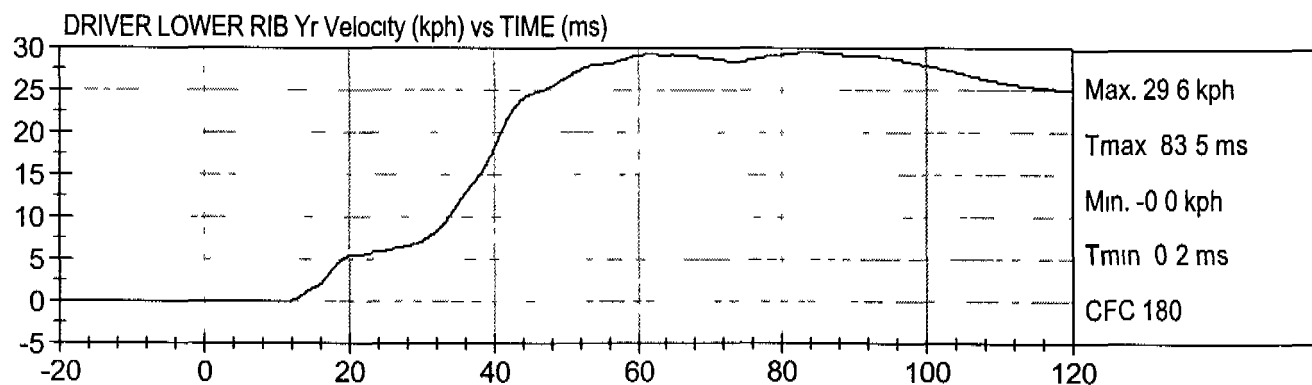
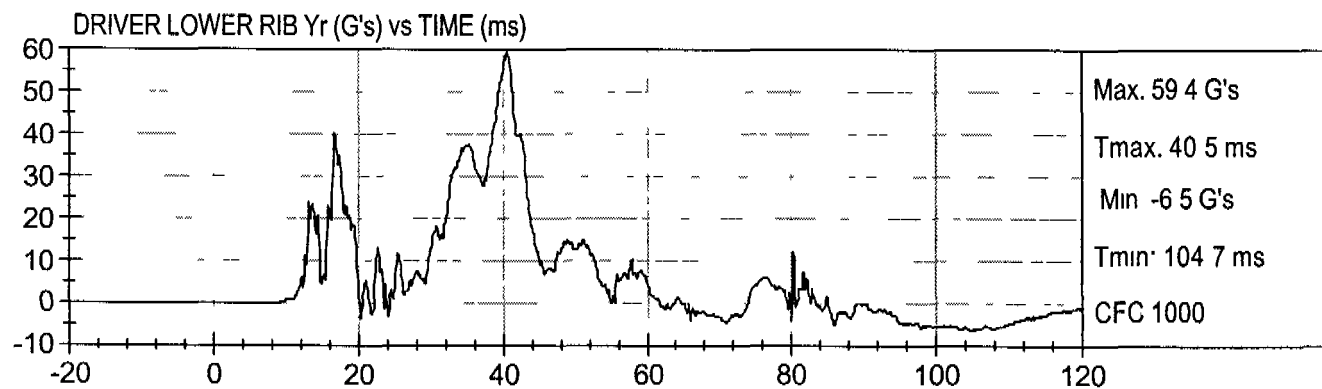
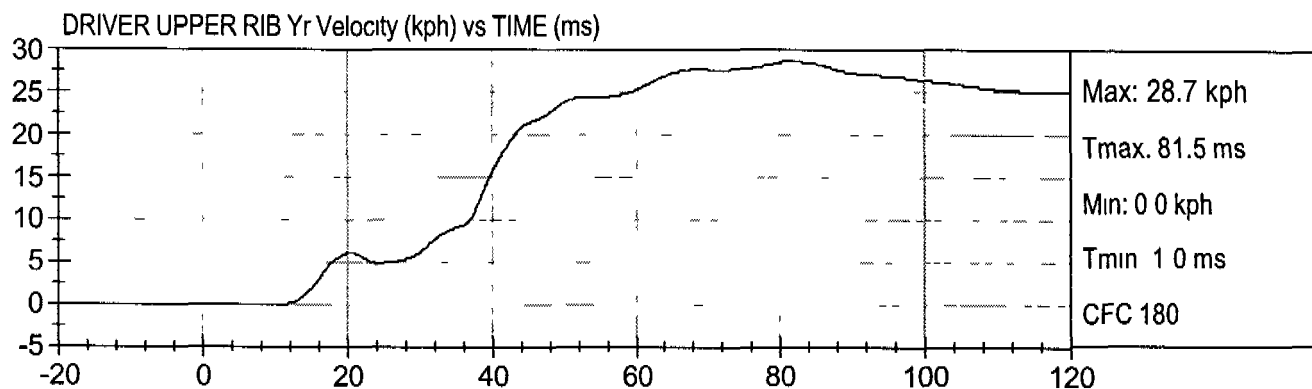
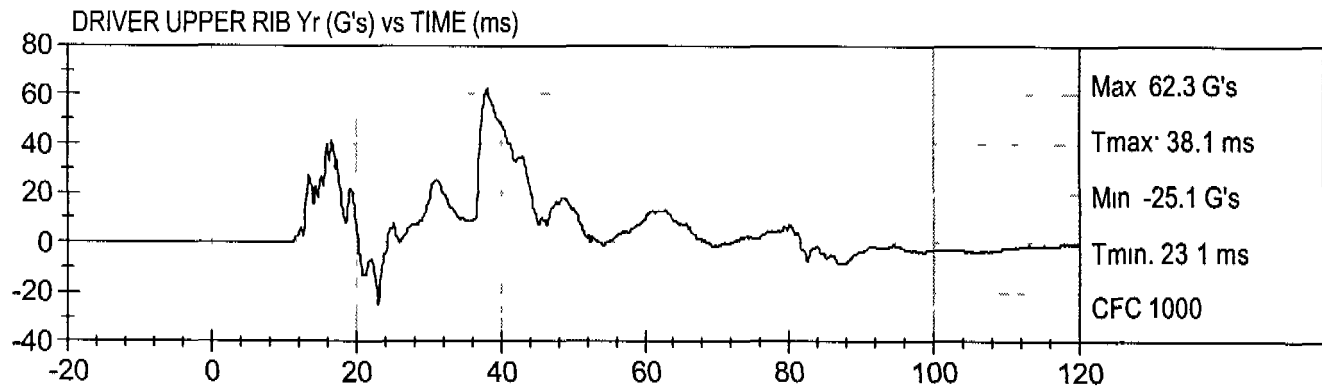
Test Date 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

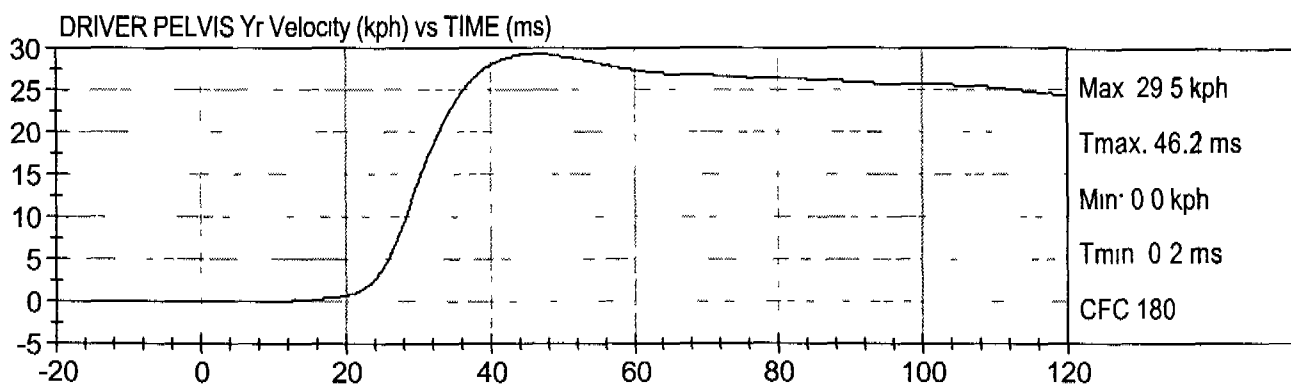
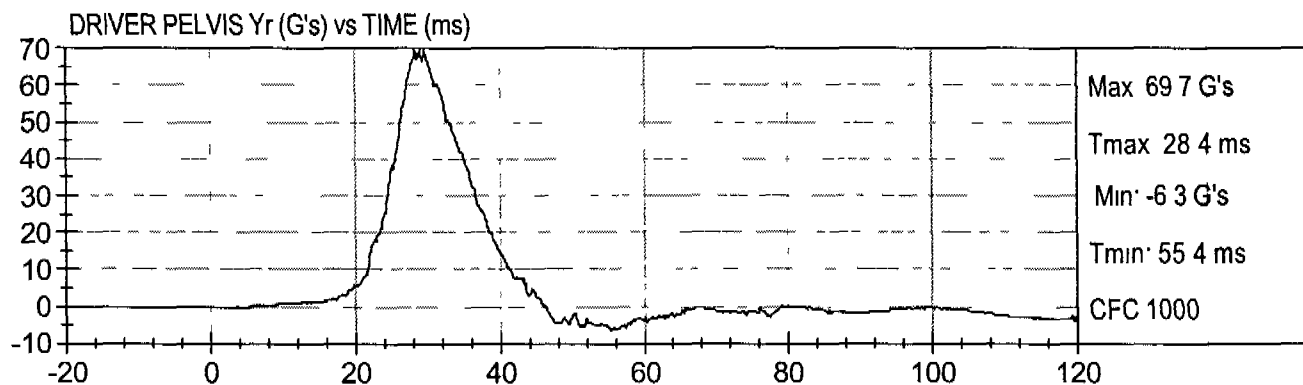
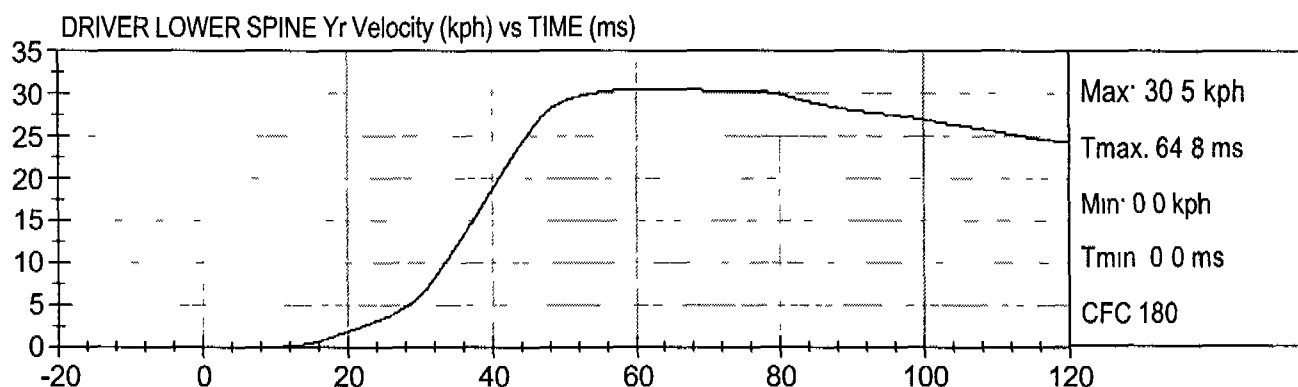
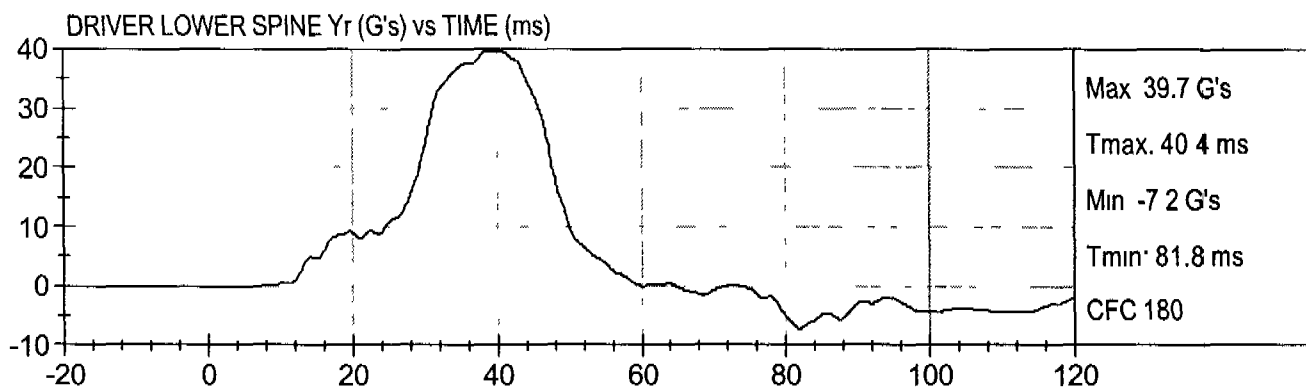
Test Date: 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

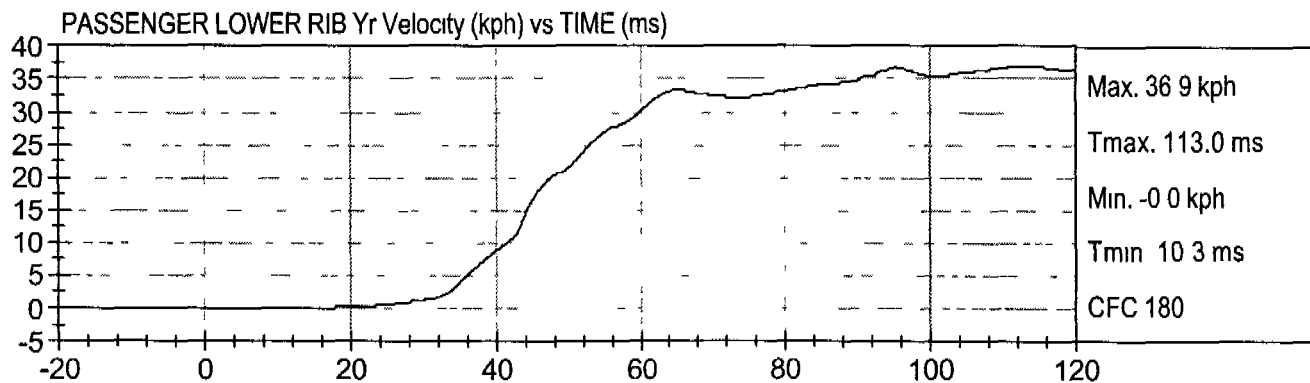
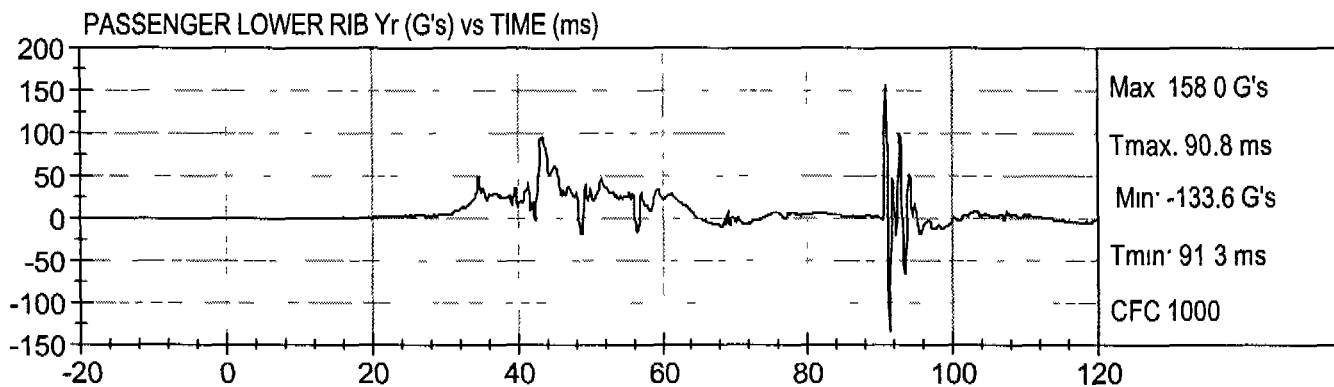
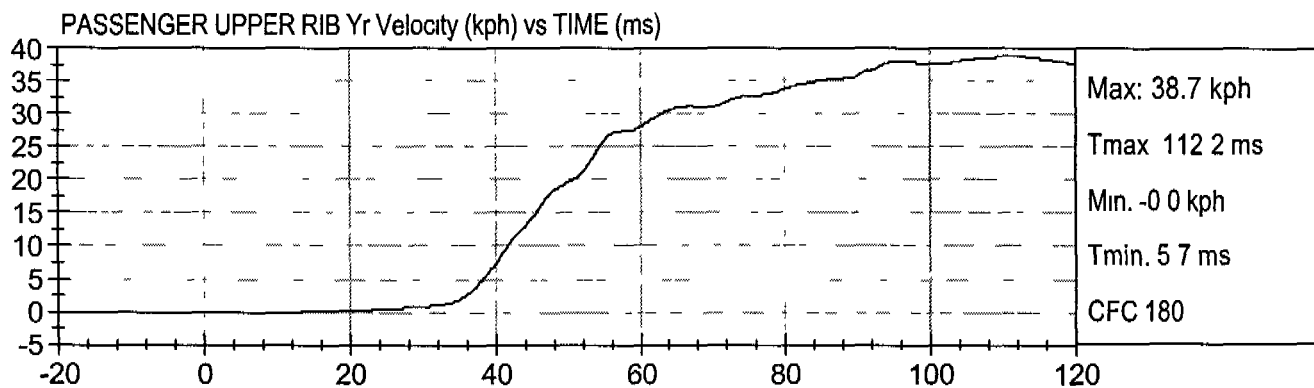
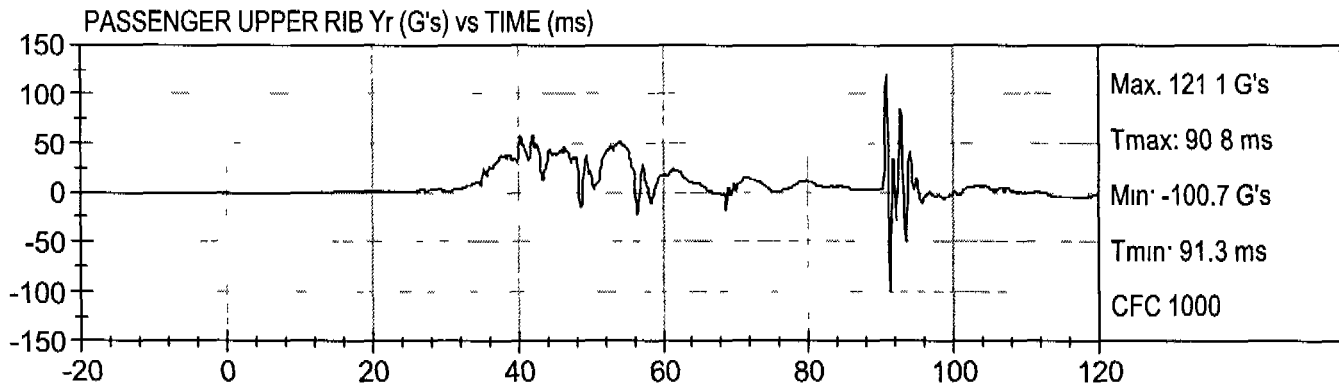
Test Date: 4/09/02
Speed: 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

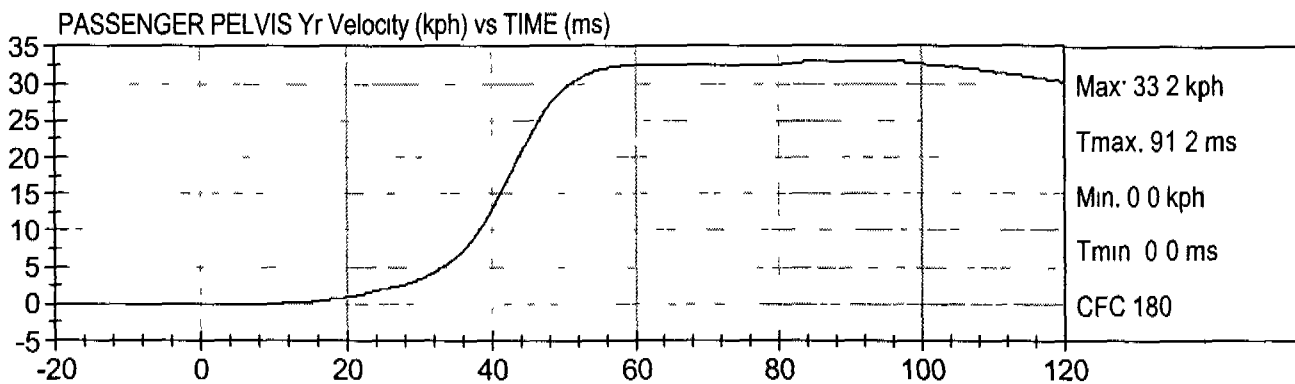
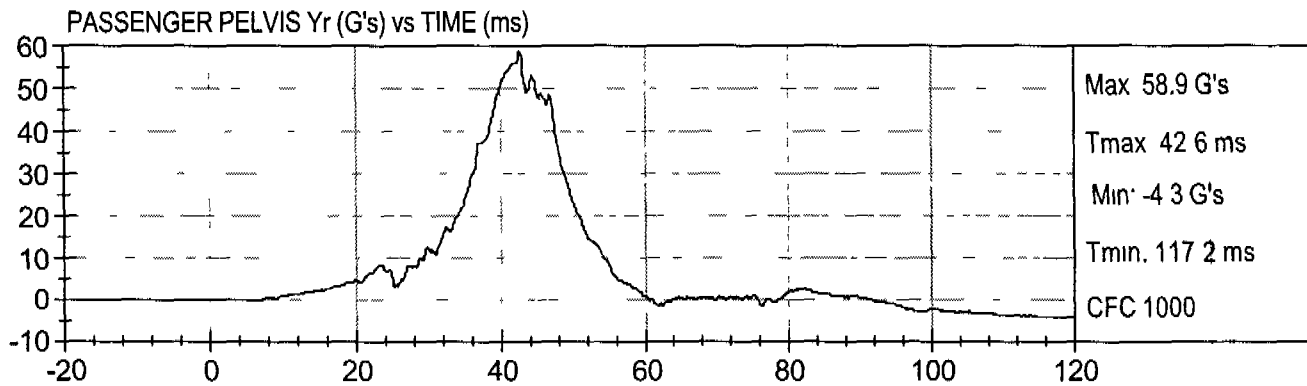
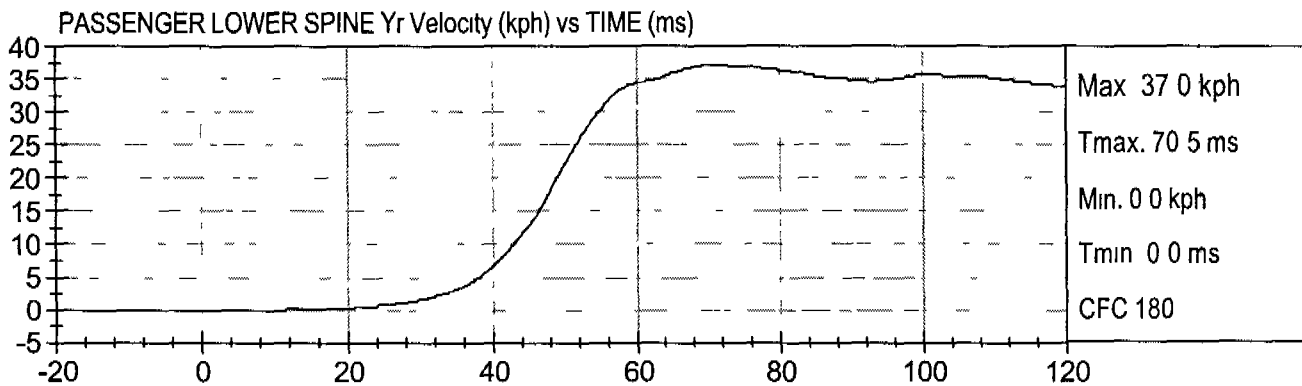
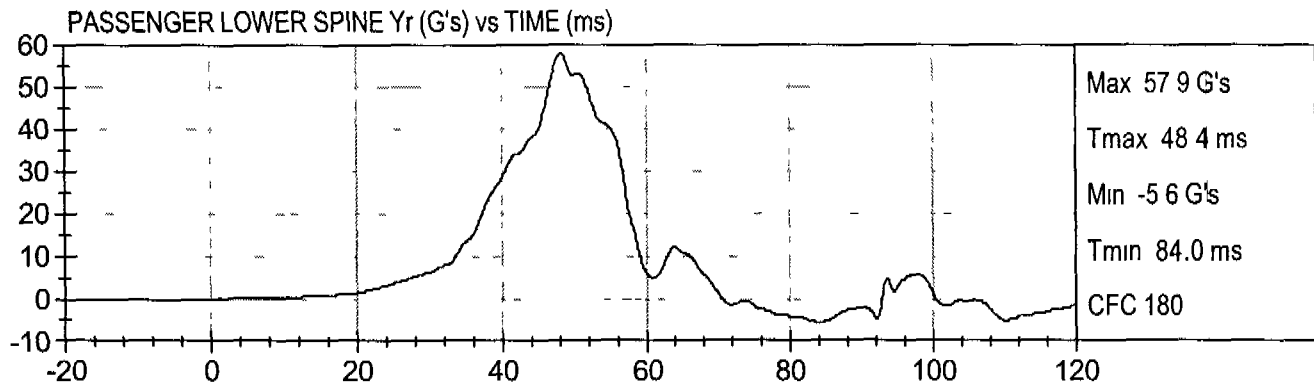
Test Date: 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

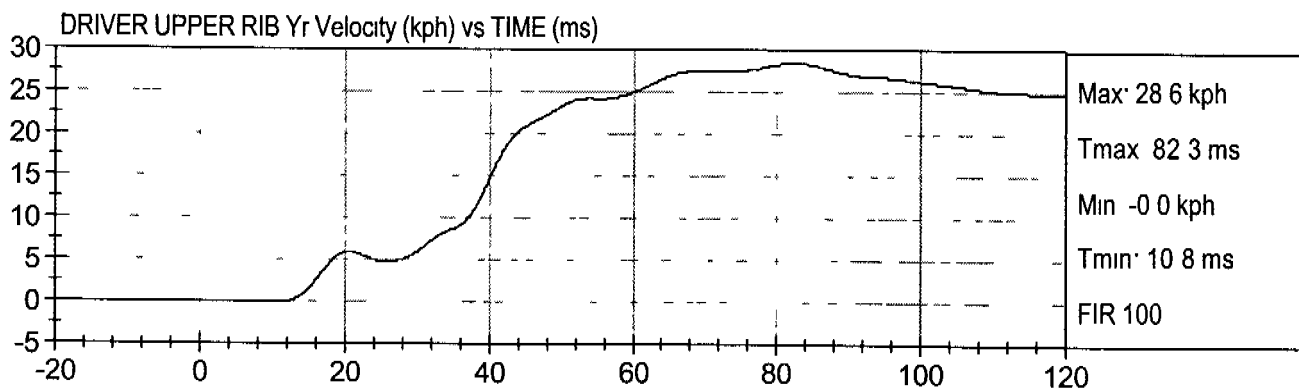
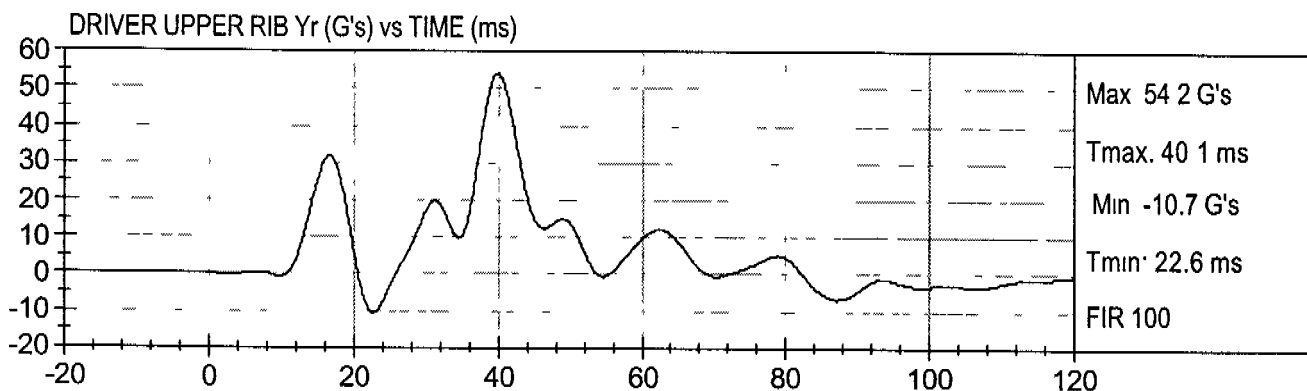
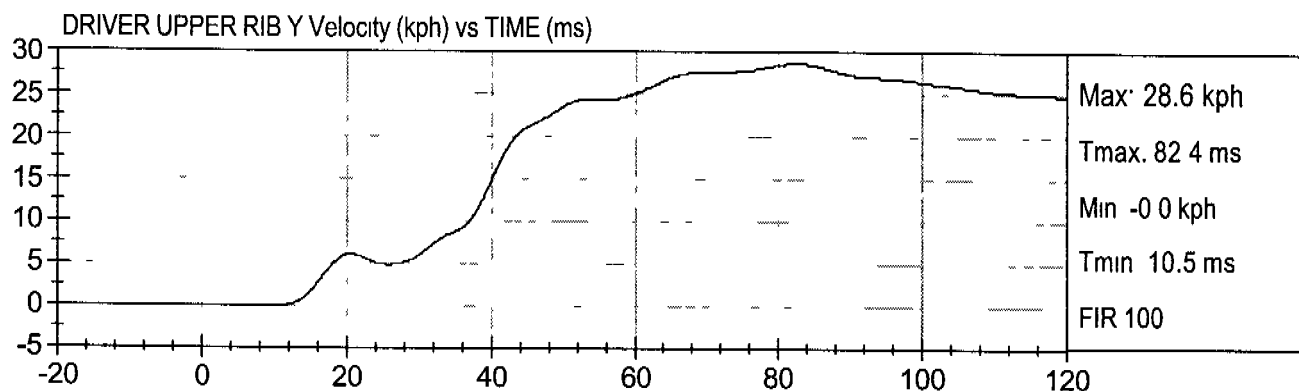
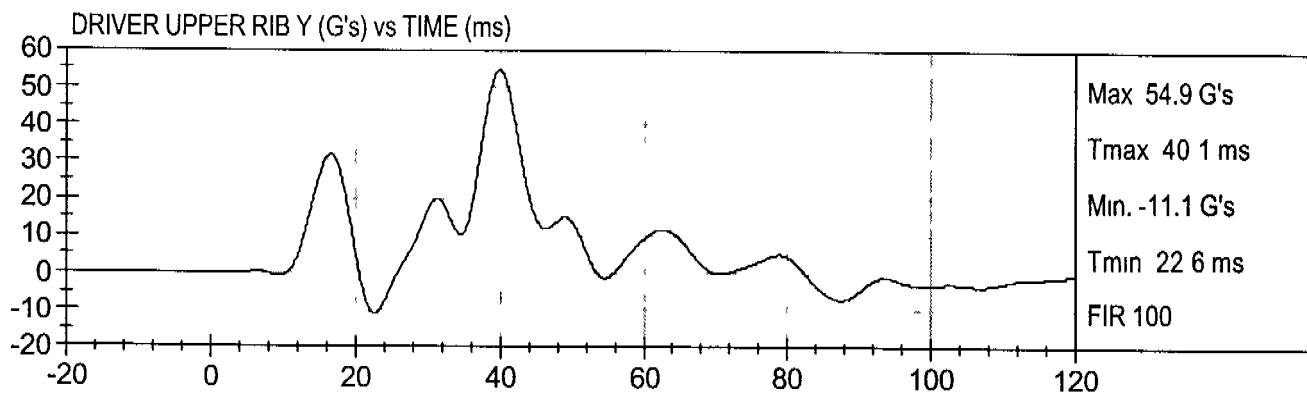
Test Date 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

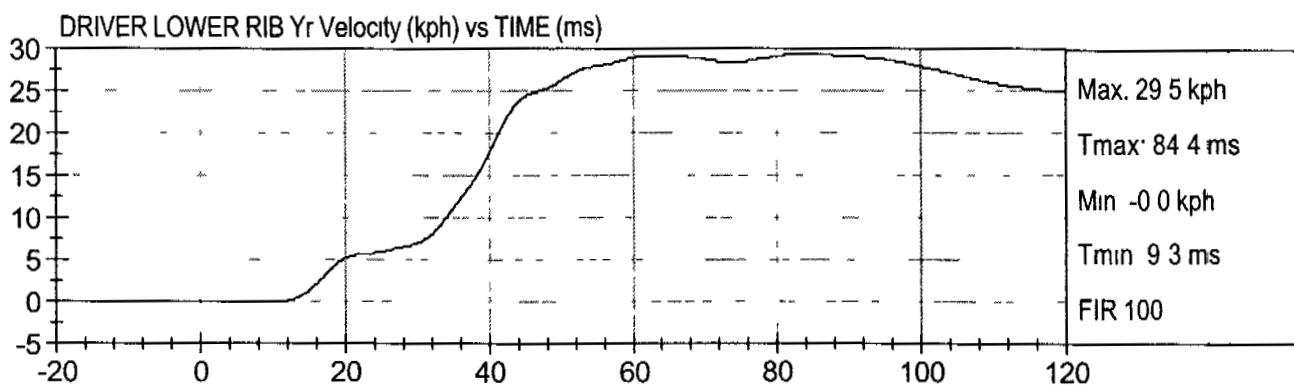
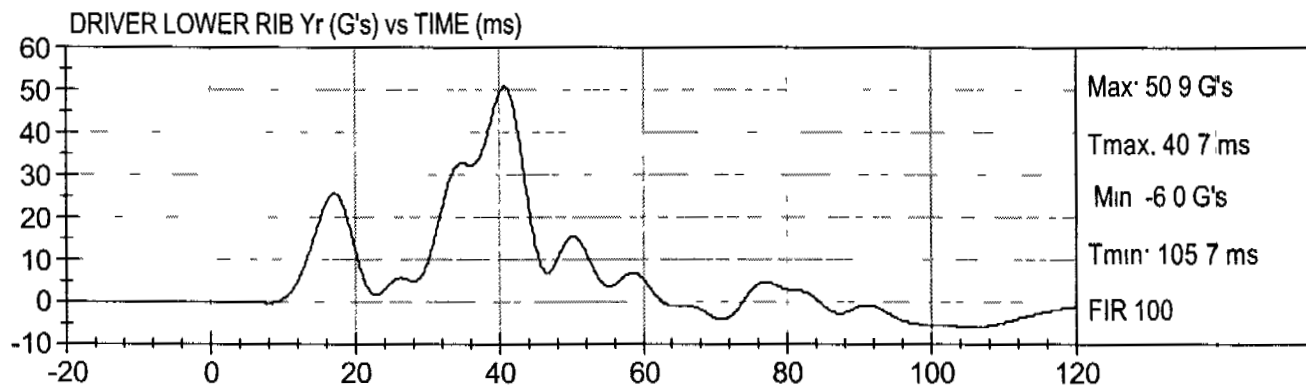
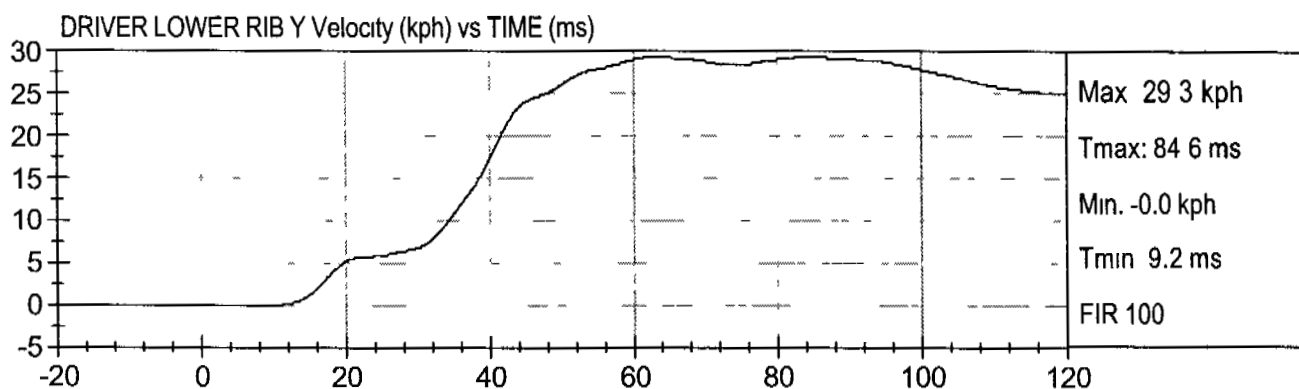
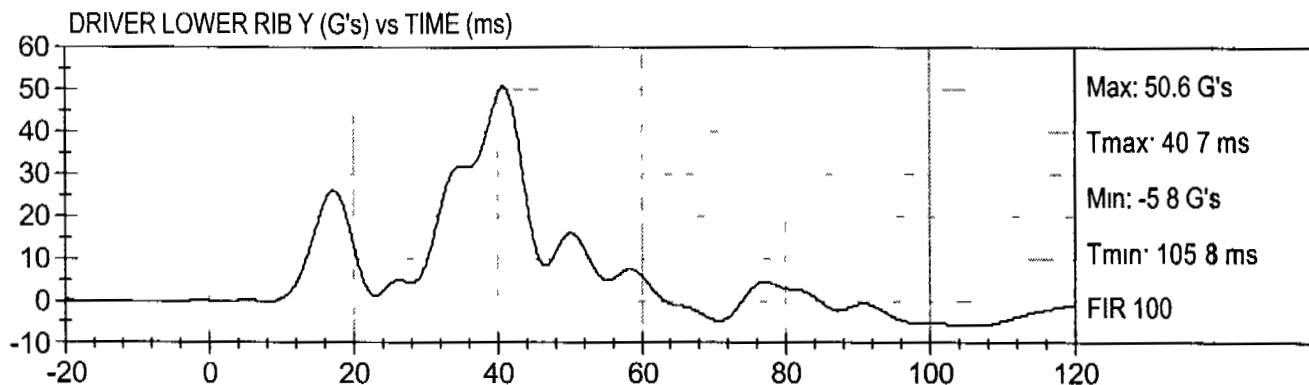
Test Date 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

Test Date: 4/09/02
Speed 32.7 mph (52.6 km/h)

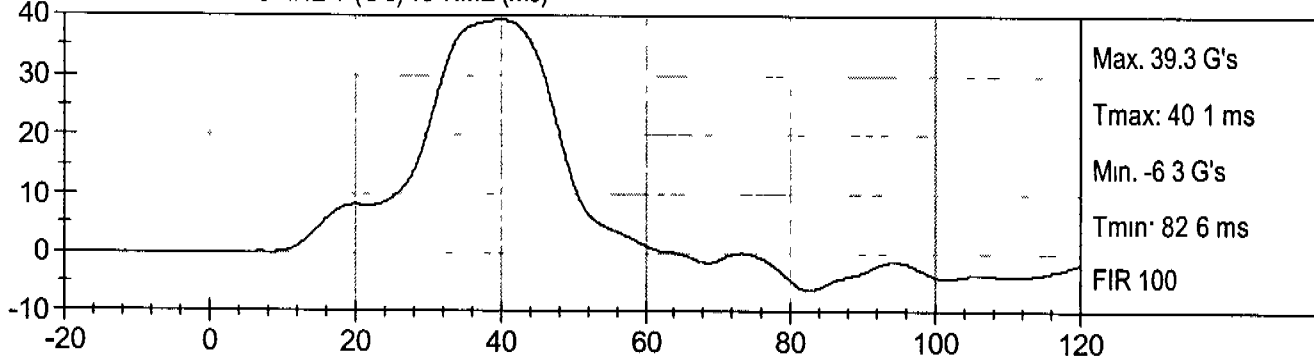




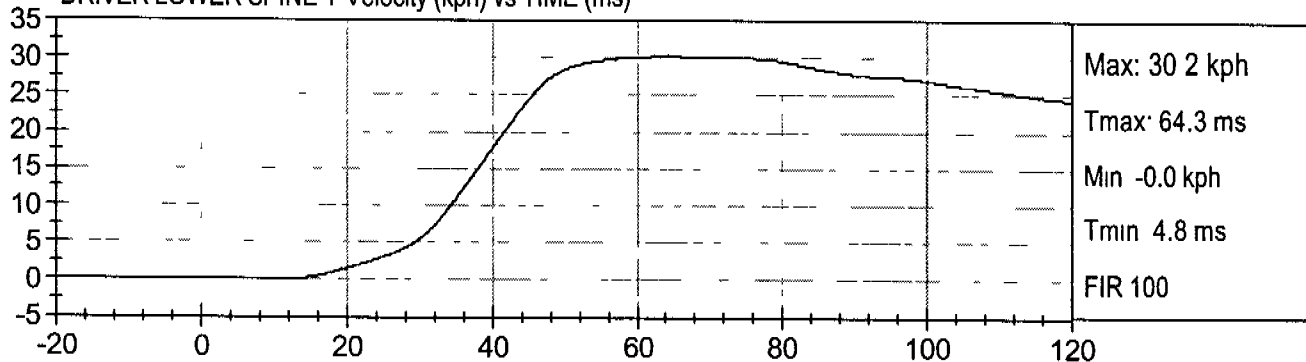
48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

Test Date: 4/09/02
Speed: 32.7 mph (52.6 km/h)

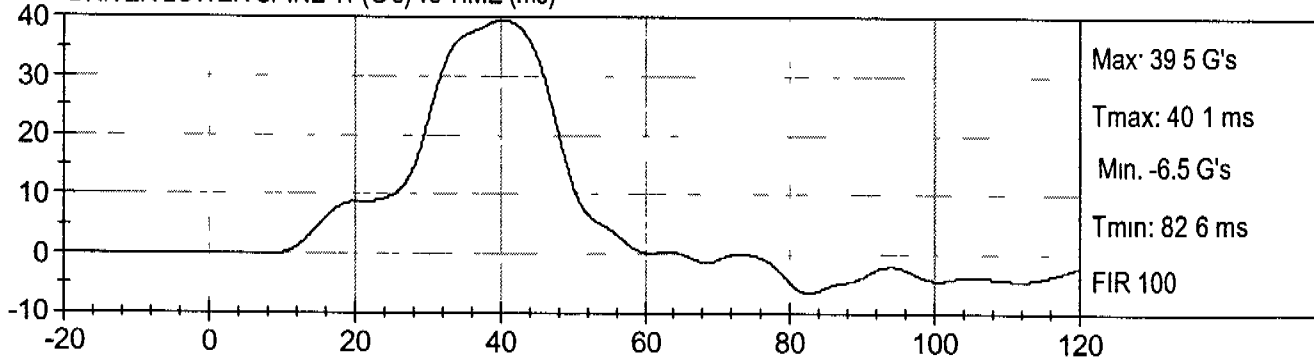
DRIVER LOWER SPINE Y (G's) vs TIME (ms)



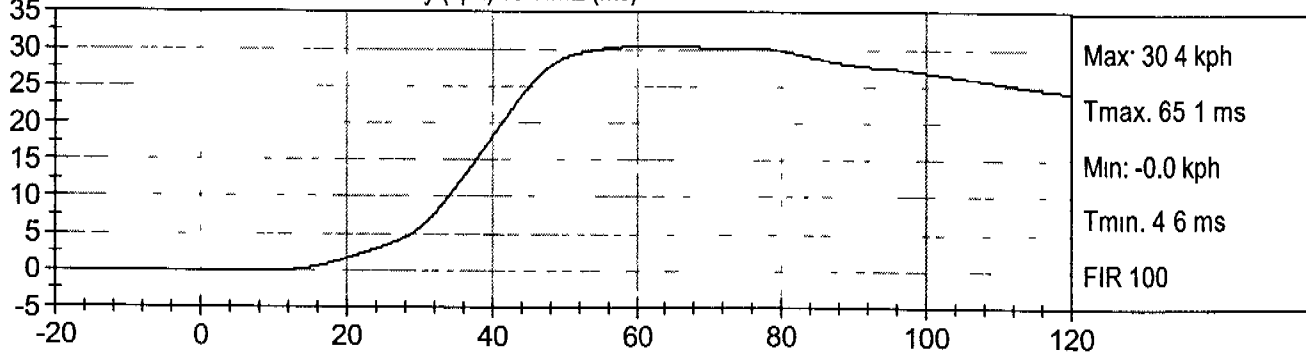
DRIVER LOWER SPINE Y Velocity (kph) vs TIME (ms)



DRIVER LOWER SPINE Yr (G's) vs TIME (ms)



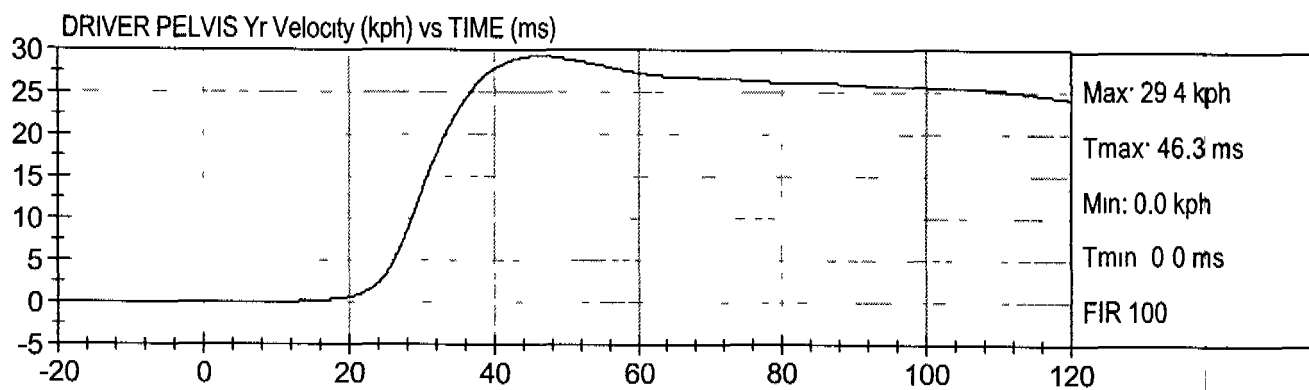
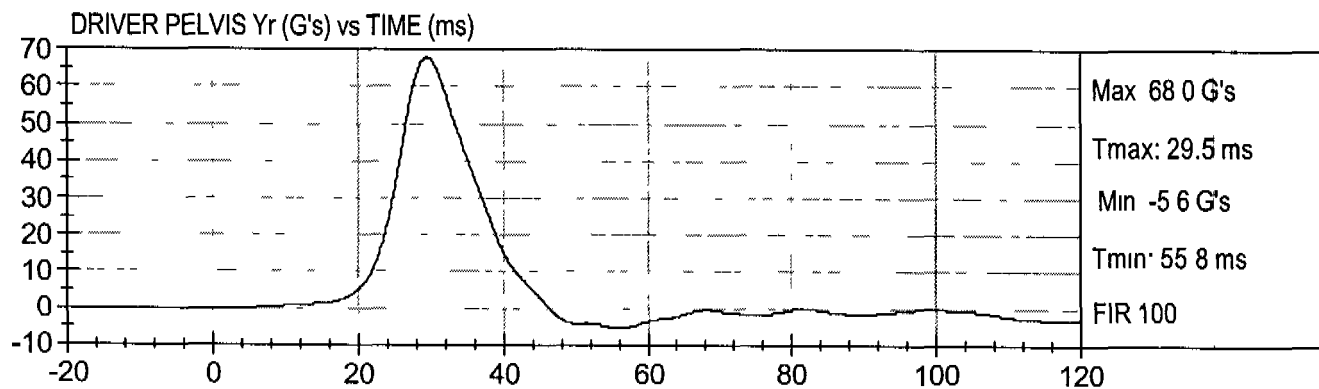
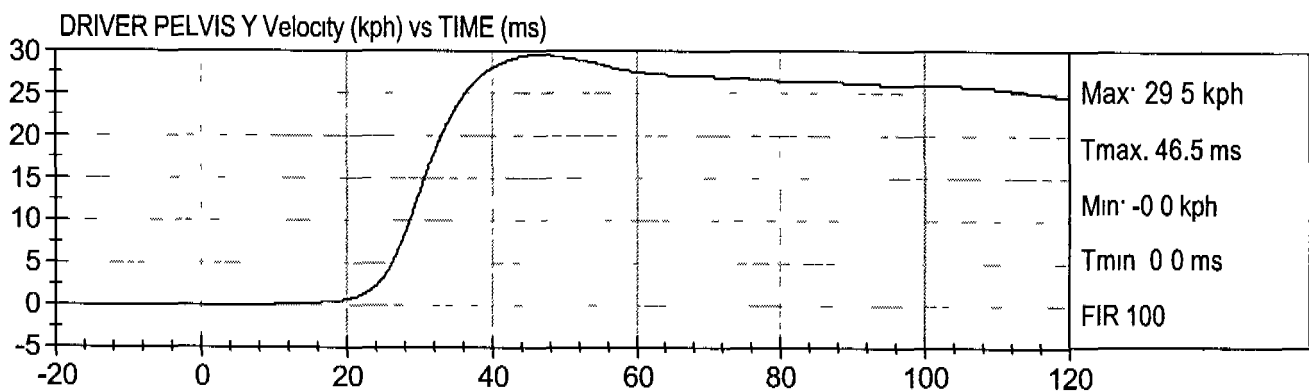
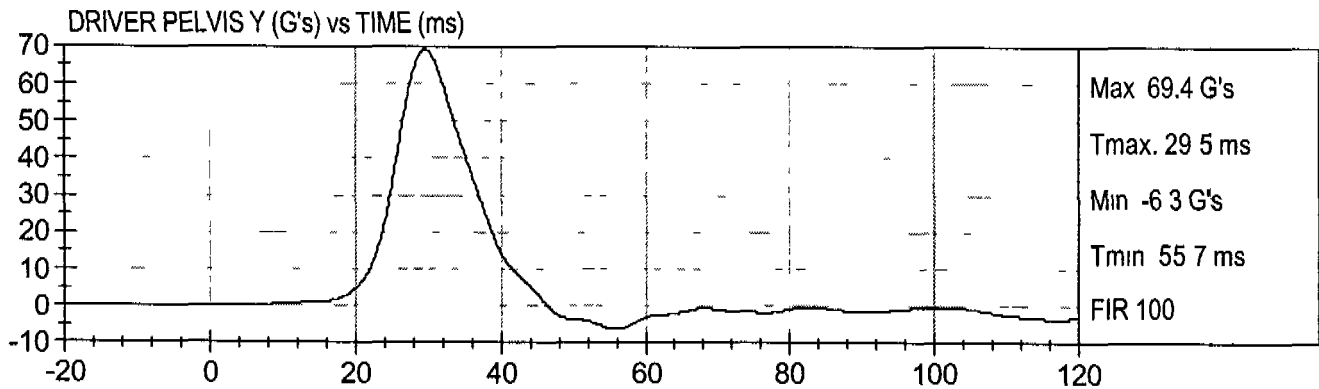
DRIVER LOWER SPINE Yr Velocity (kph) vs TIME (ms)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

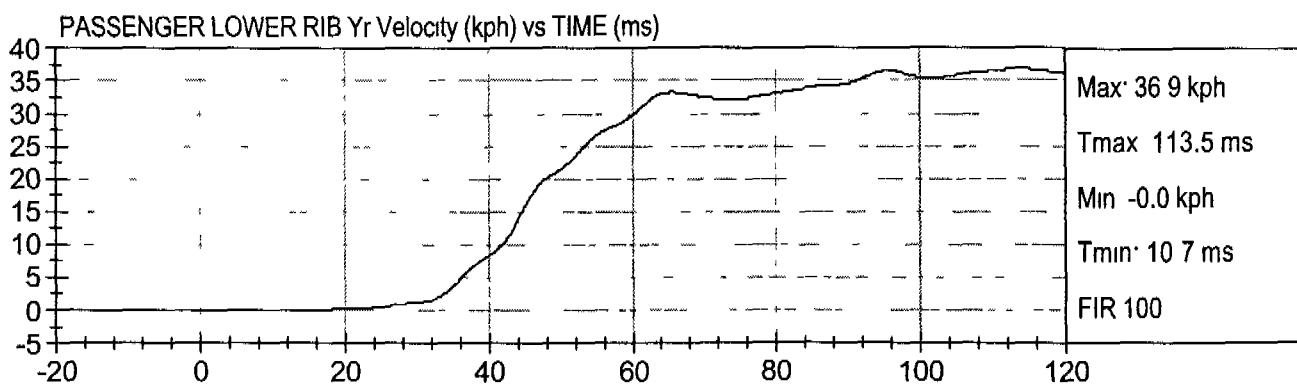
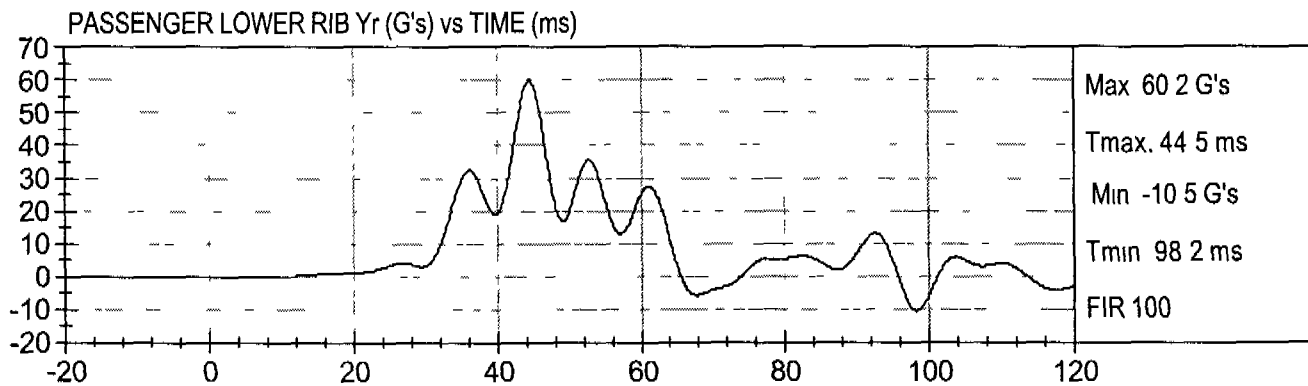
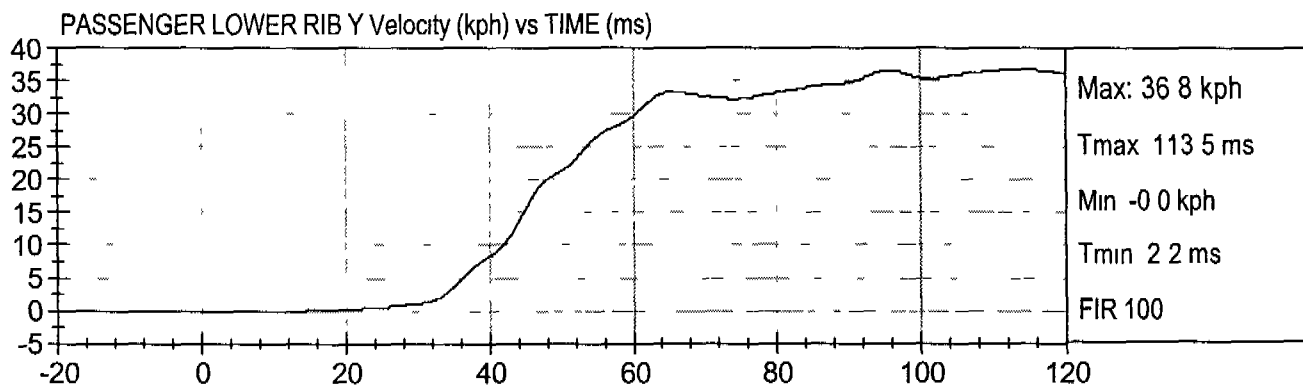
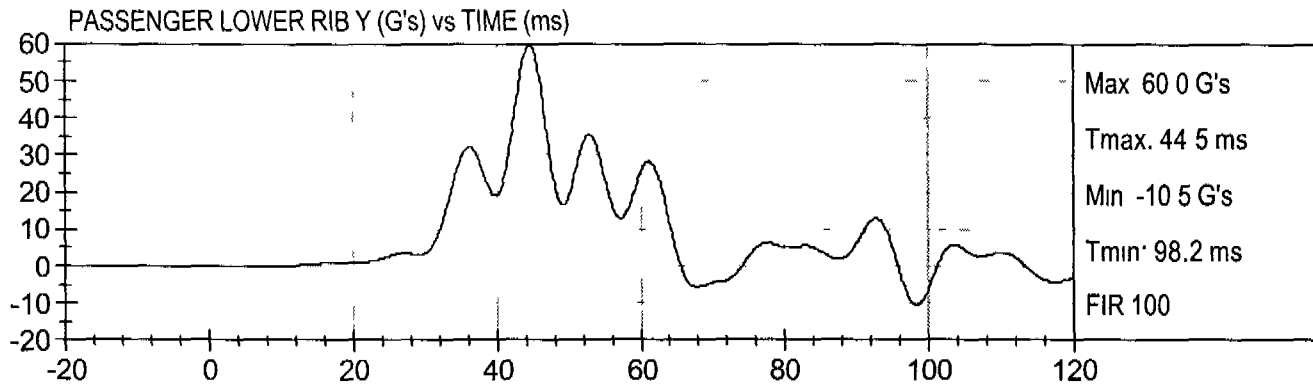
Test Date: 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

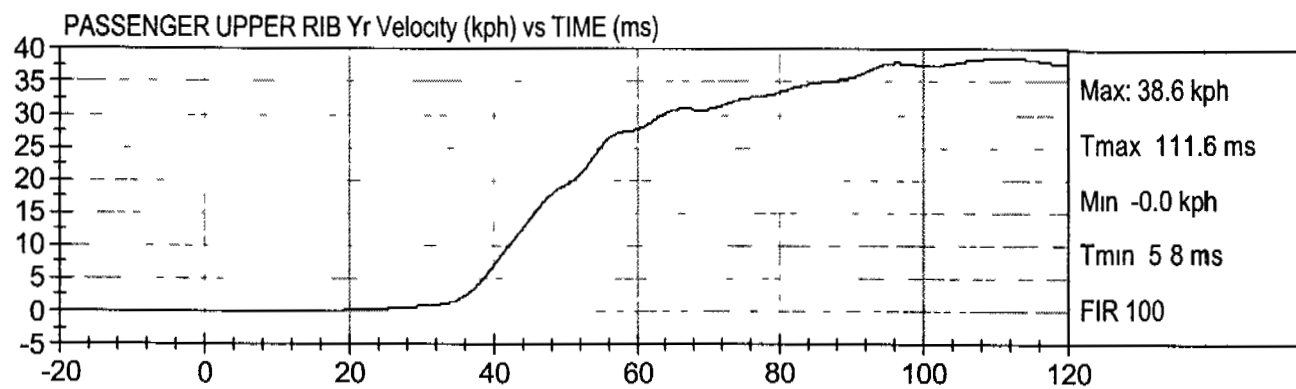
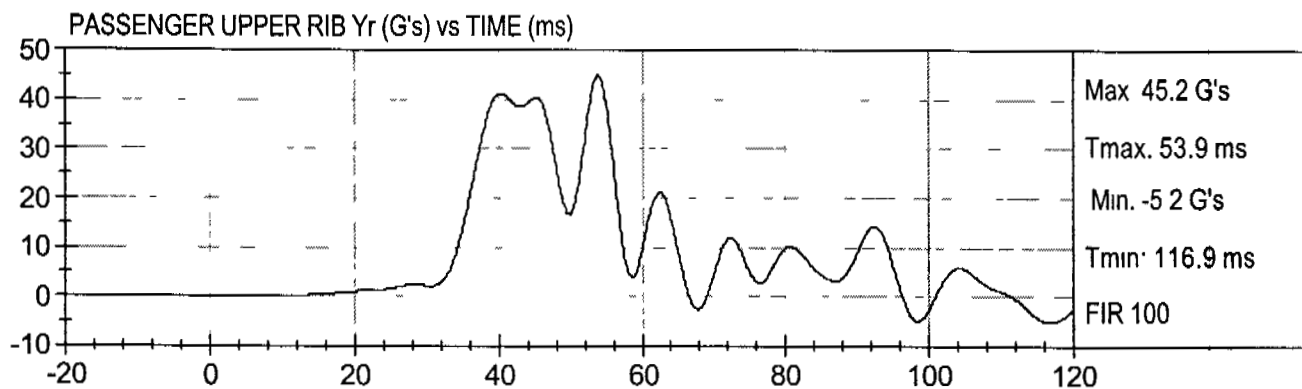
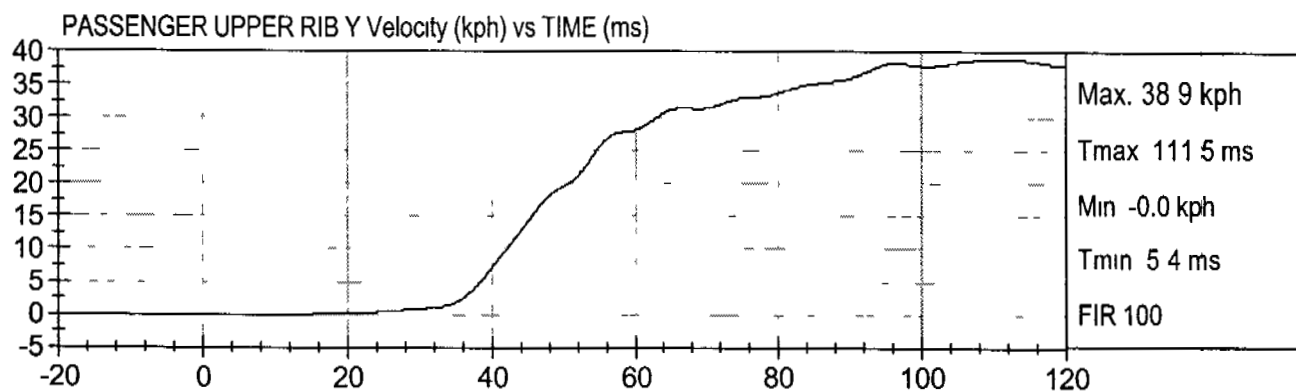
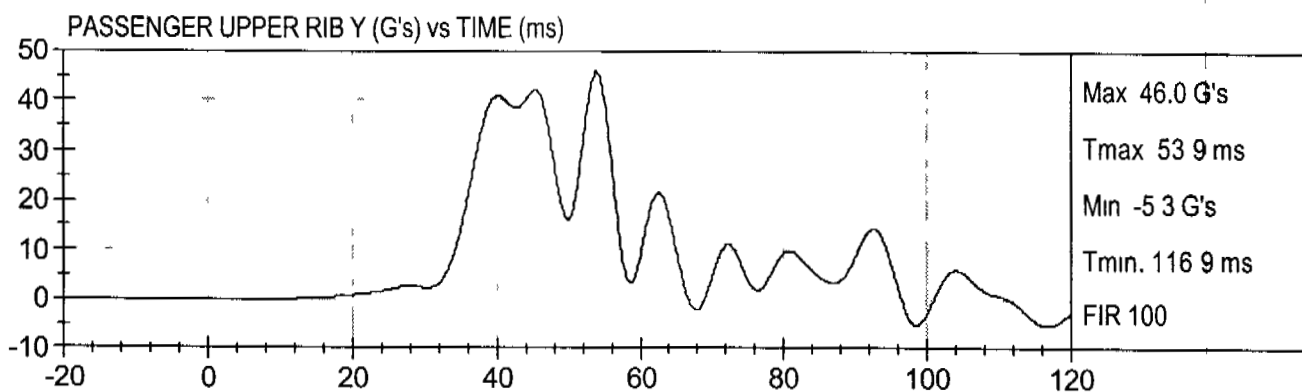
Test Date: 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

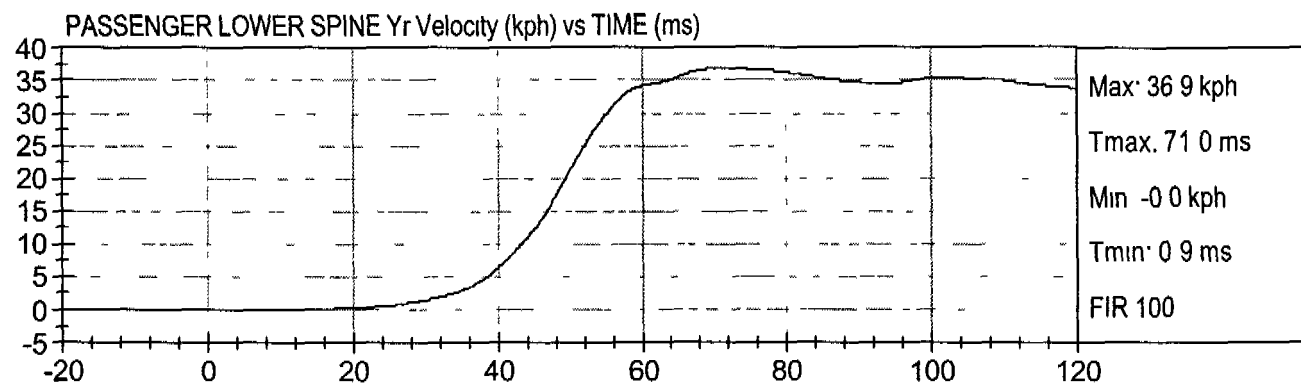
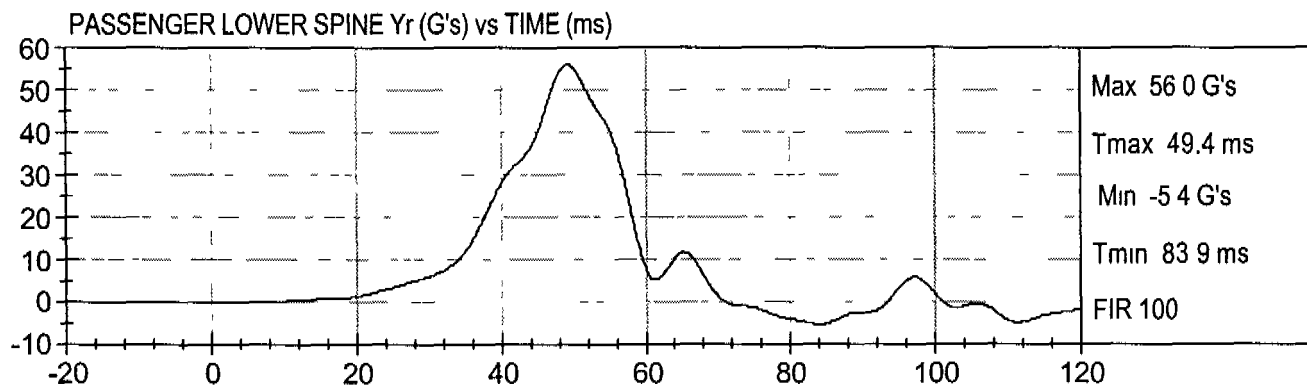
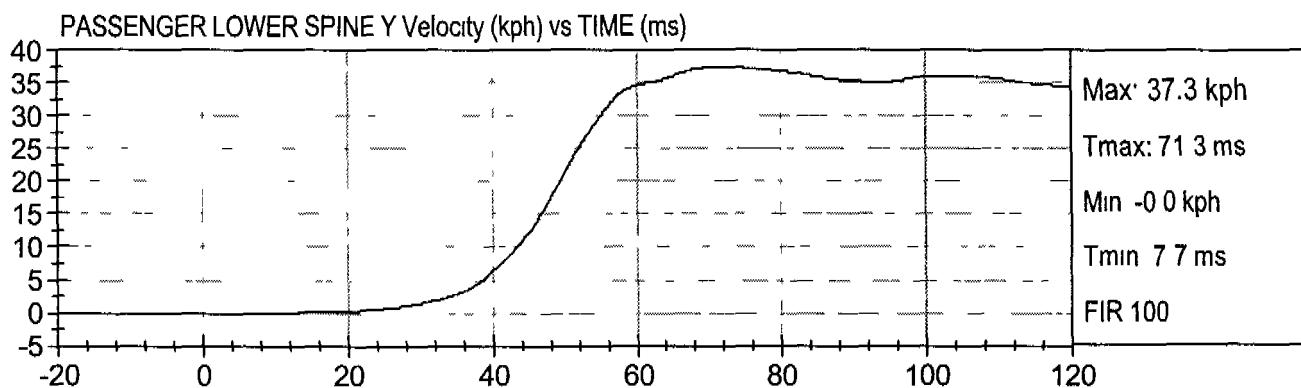
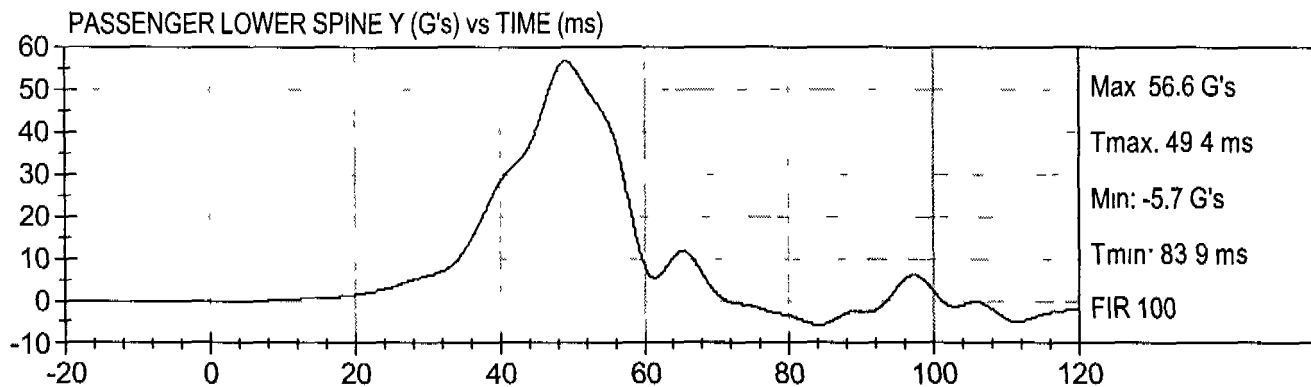
Test Date: 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

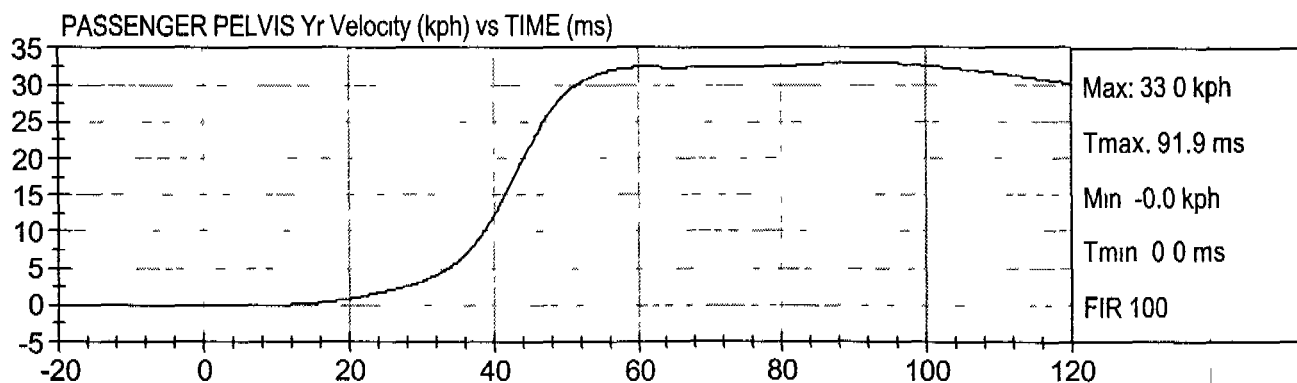
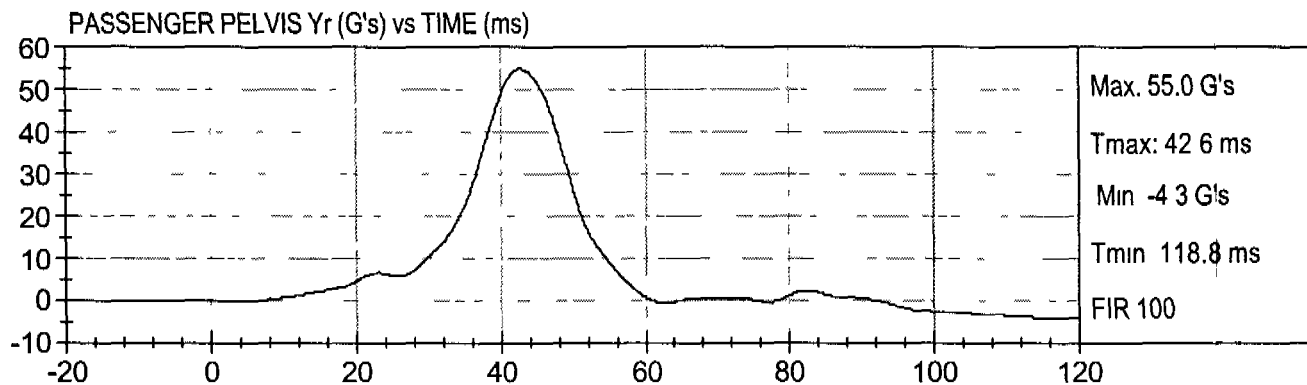
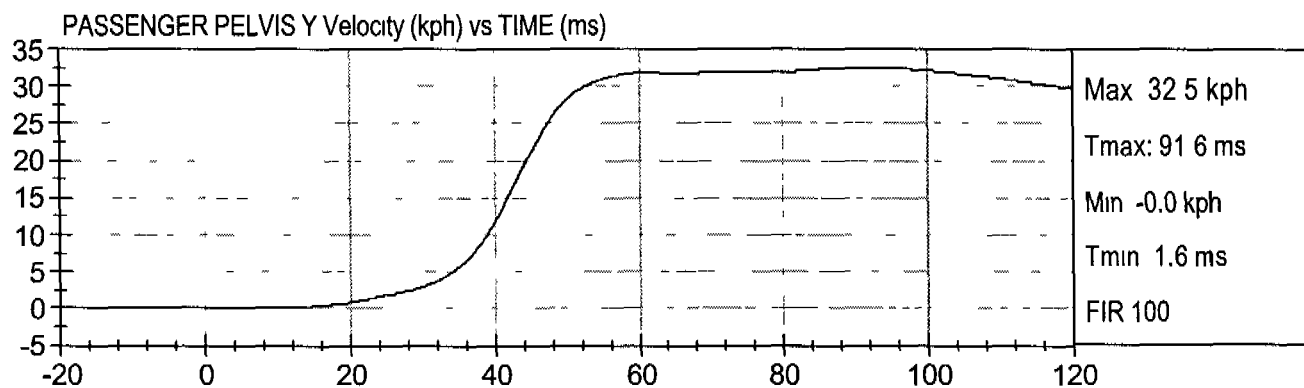
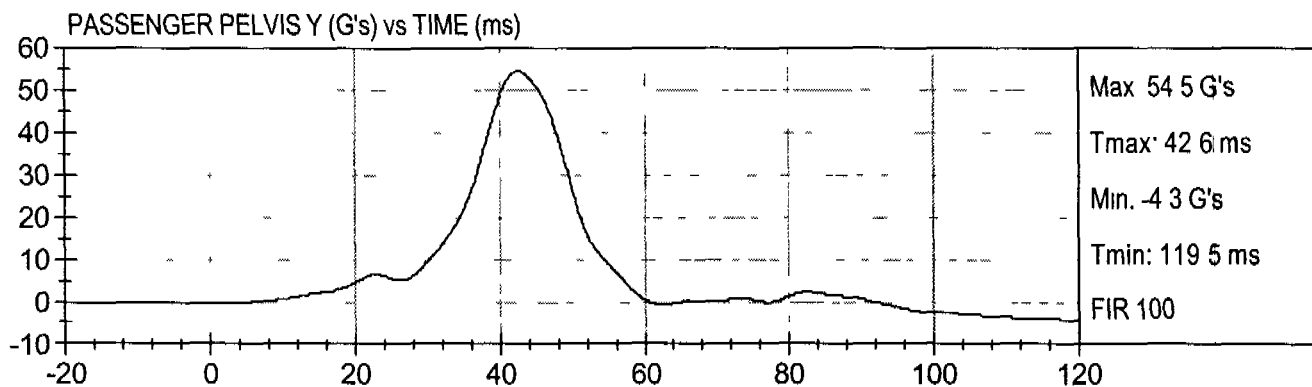
Test Date: 4/09/02
Speed 32.7 mph (52.6 km/h)





48/24 KPH SIDE IMPACT
2003 HYUNDAI TIBURON (C30500)

Test Date: 4/09/02
Speed 32.7 mph (52.6 km/h)



APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SID Calibration Data Sheet
Side Impact Dummy
Configured to Left Side Impact

Technician: Tim Michnay

Tested Parameter	Units	Specification	Dummy Serial Number. 036	
			Pre-Test	Post-Test
SH - Seated Height	mm	889 - 909	903	903
RH - Rib Height	mm	501 - 521	506	506
HP - Hip Pivot Height	mm	99 ref.	99	99
RD - Rib from Back Line	mm	229 - 241	232	232
KV - Knee Pivot to Back Line	mm	511 - 526	518	518
SW - Knee Pivot to Floor	mm	490 - 505	497	497
HW - Hip Width	mm	356 - 391	370	370
Thorax Impact				
Laboratory Temperature	deg C	18.9 - 25.5	21.3	21.8
Laboratory Relative Humidity	%	10 to 70	29	38
Probe Velocity	m/s	4.27 - 4.33	4.27	4.28
Upper Rib	G's	37 - 46	45	45
Lower Rib	G's	37 - 46	45	44
Lower Spine	G's	15 - 22	17	18
Pelvis Impact				
Laboratory Temperature	deg C	18.9 to 25.5	21.3	21.8
Laboratory Relative Humidity	%	10 to 70	29	38
Probe Velocity	m/s	4.27 to 4.33	4.28	4.28
Pelvis	G's	40 - 60	48	45

SID Calibration Data Sheet
Side Impact Dummy
Configured to Left Side Impact

Technician: Tim Michnay

Tested Parameter	Units	Specification	Dummy Serial Number: 037	
			Pre-Test	Post-Test
SH - Seated Height	mm	889 - 909	902	902
RH - Rib Height	mm	501 - 521	509	509
HP - Hip Pivot Height	mm	99 ref.	99	99
RD - Rib from Back Line	mm	229 - 241	232	232
KV - Knee Pivot to Back Line	mm	511 - 526	519	519
SW - Knee Pivot to Floor	mm	490 - 505	493	493
HW - Hip Width	mm	356 - 391	378	378
Thorax Impact				
Laboratory Temperature	deg C	18.9 - 25.5	21.3	21.8
Laboratory Relative Humidity	%	10 to 70	29	38
Probe Velocity	m/s	4.27 - 4.33	4.30	4.27
Upper Rib	G's	37 - 46	44	42
Lower Rib	G's	37 - 46	45	45
Lower Spine	G's	15 - 22	20	20
Pelvis Impact				
Laboratory Temperature	deg C	18.9 to 25.5	21.3	21.8
Laboratory Relative Humidity	%	10 to 70	29	38
Probe Velocity	m/s	4.27 to 4.33	4.29	4.27
Pelvis	G's	40 - 60	44	47

CERTIFICATION DATA

Dummy Serial Number: 036

CERTIFICATION DATA

Dummy Serial Number: 036

Pre-Test Calibration

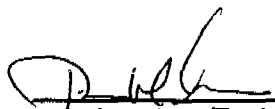
External Dimensions:	The dummy passed all external dimension requirements.
Head Drop Test:	The head passed all drop test requirements
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvis Impact Test:	The pelvis passed all impact test requirements
Abdominal Compression Test.	The abdomen passed all compression test requirements
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

SID Calibration Data Sheet
Side Impact Dummy
External Measurements

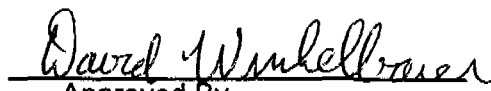
ATD Serial No: 036

Test I.D.: D0248

Tested Parameter	Units	Specification	Result	Pass/Fail
SH - Seated Height	mm	889 - 909	903	Pass
RH - Rib Height	mm	501 - 521	506	Pass
HP - Hip Pivot Height	mm	99 ref.	99	Pass
RD - Rib from Back Line	mm	229 - 241	232	Pass
KV - Knee Pivot to Back Line	mm	511 - 526	518	Pass
SW - Knee Pivot to Floor	mm	490 - 505	497	Pass
HW - Hip Width	mm	356 - 391	370	Pass
Overall Test Results				Pass


 Laboratory Technician

4/5/02
 Test Date


 Approved By

SID Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration

ATD Serial No: 036

Test I.D.: D02481

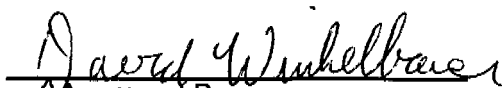
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	21	Pass
Peak Resultant Acceleration	G's	210 to 260	226	Pass
Peak Lateral Acceleration	G's	< 10	-8	Pass
Time Above 100 G	msec	0.9 - 1.5	1.2	Pass
Overall Test Results				Pass



Laboratory Technician

4/5/02

Test Date



Approved By



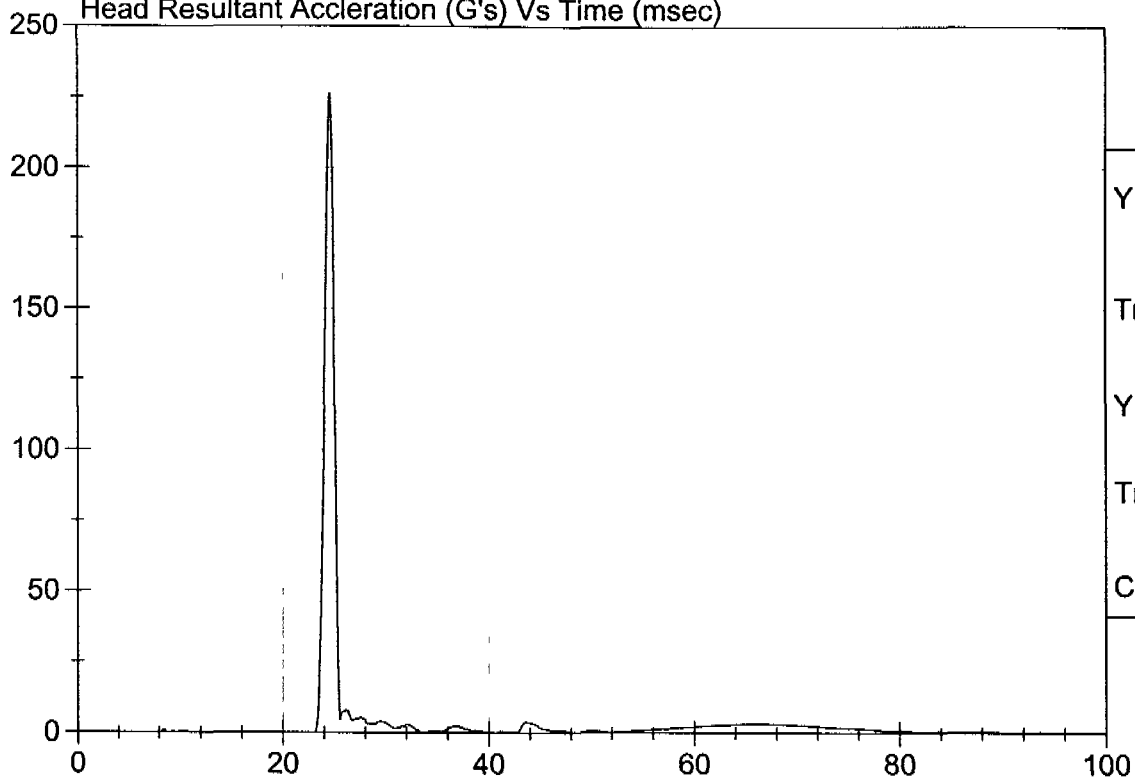
Test Description: Head Drop

Test Date: 4/5/02

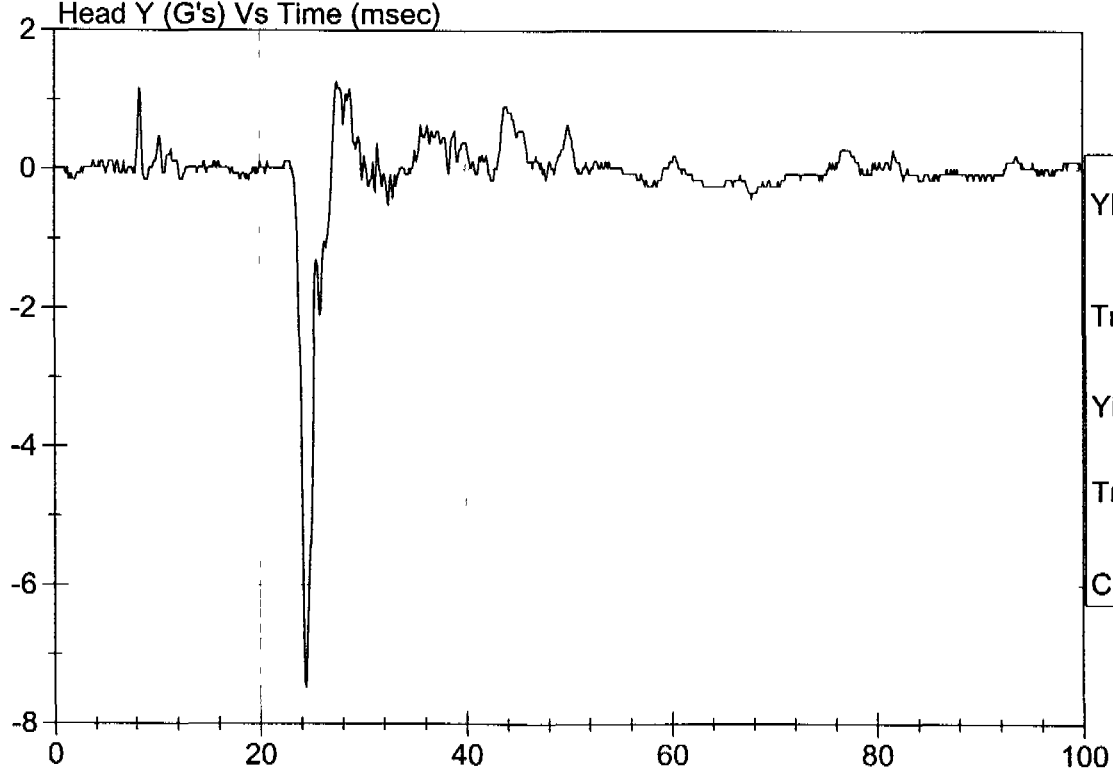
Component: D02481

Speed: 0 ft/s, 0 m/s

Head Resultant Acceleration (G's) Vs Time (msec)



Head Y (G's) Vs Time (msec)



SID Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

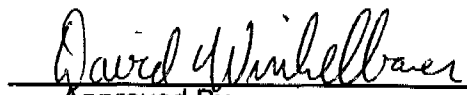
ATD Serial No: 036

Test I.D: D02482

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	29	Pass
Probe Velocity	m/s	4.27 - 4.33	4.27	Pass
Upper Rib	G's	37 - 46	45	Pass
Lower Rib	G's	37 - 46	45	Pass
Lower Spine	G's	15 - 22	17	Pass
Overall Test Results				Pass



Laboratory Technician



Approved By

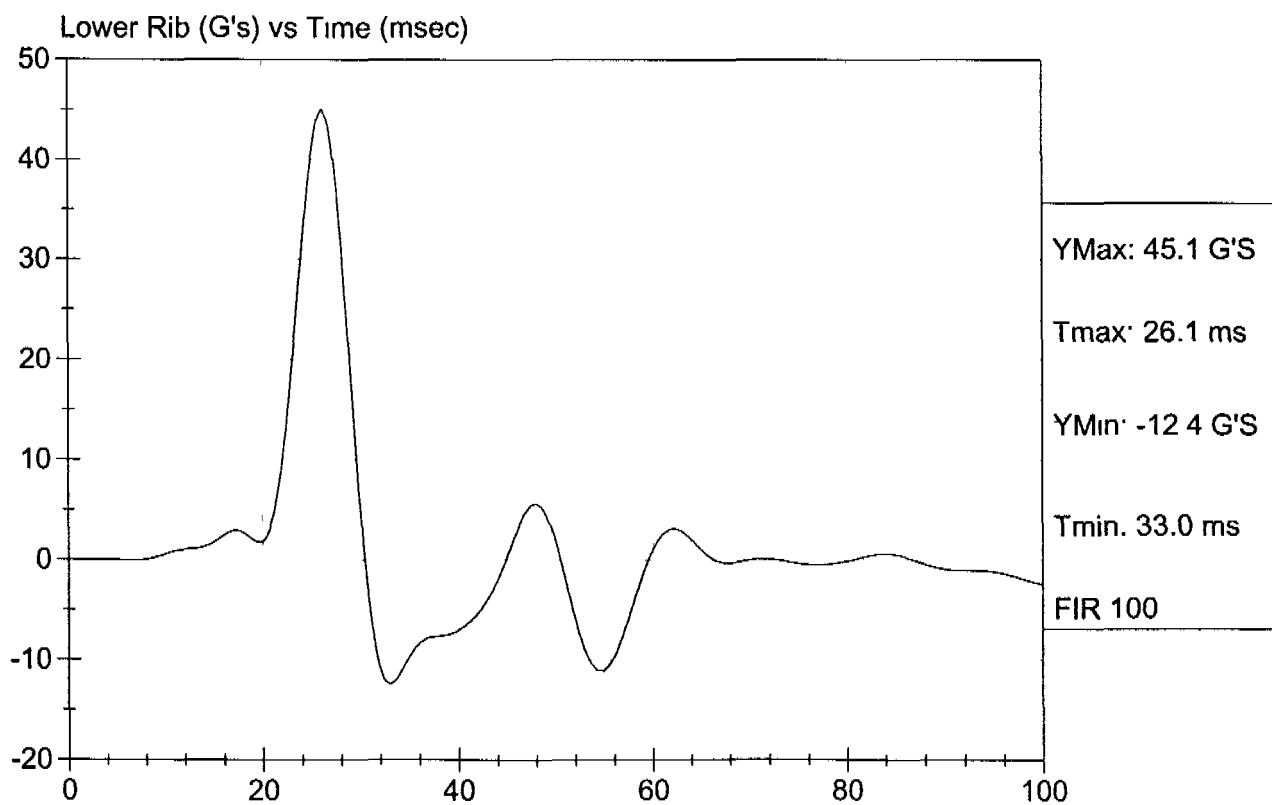
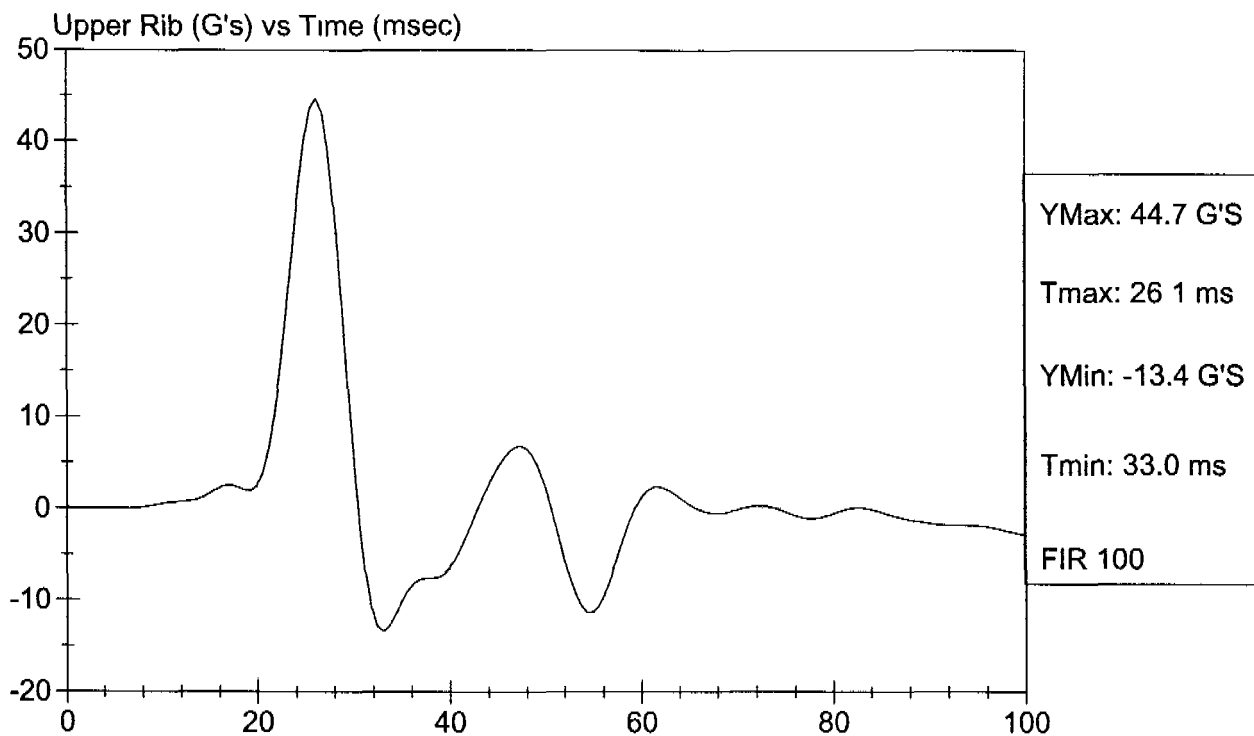
4/4/02

Test Date



Test Desc: Thorax Impact
Component ID: D02482

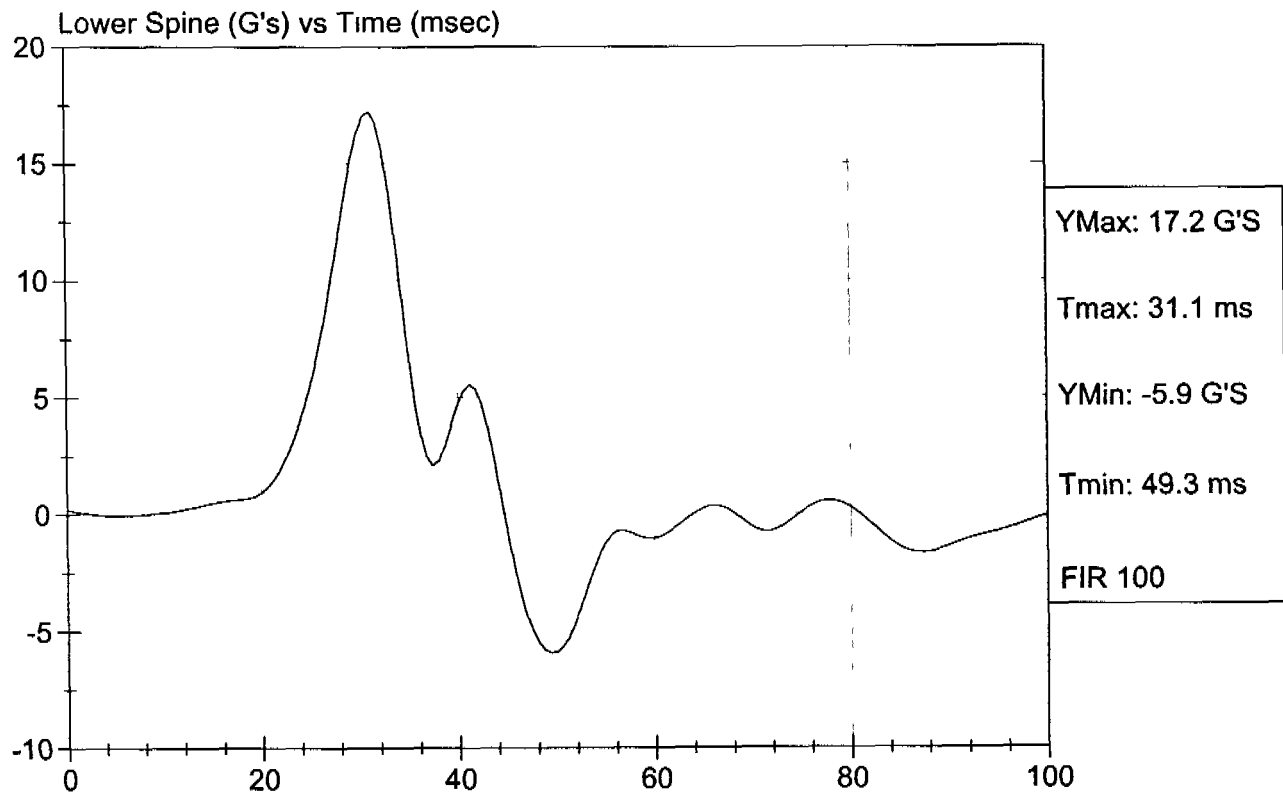
Test Date: 4/4/02
Speed: 14.01 ft/sec, 4.27 m/sec





Test Desc: Thorax Impact
Component ID: D02482

Test Date: 4/4/02
Sp ed. 14.01 ft/sec, 7.02 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

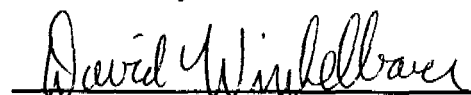
ATD Serial No: 036

Test I.D.: D02483

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	29	Pass
Probe Velocity	m/s	4.27 - 4.33	4.28	Pass
Pelvis Acceleration	G's	40 - 60	48	Pass
Overall Test Results				Pass



Laboratory Technician



Approved By

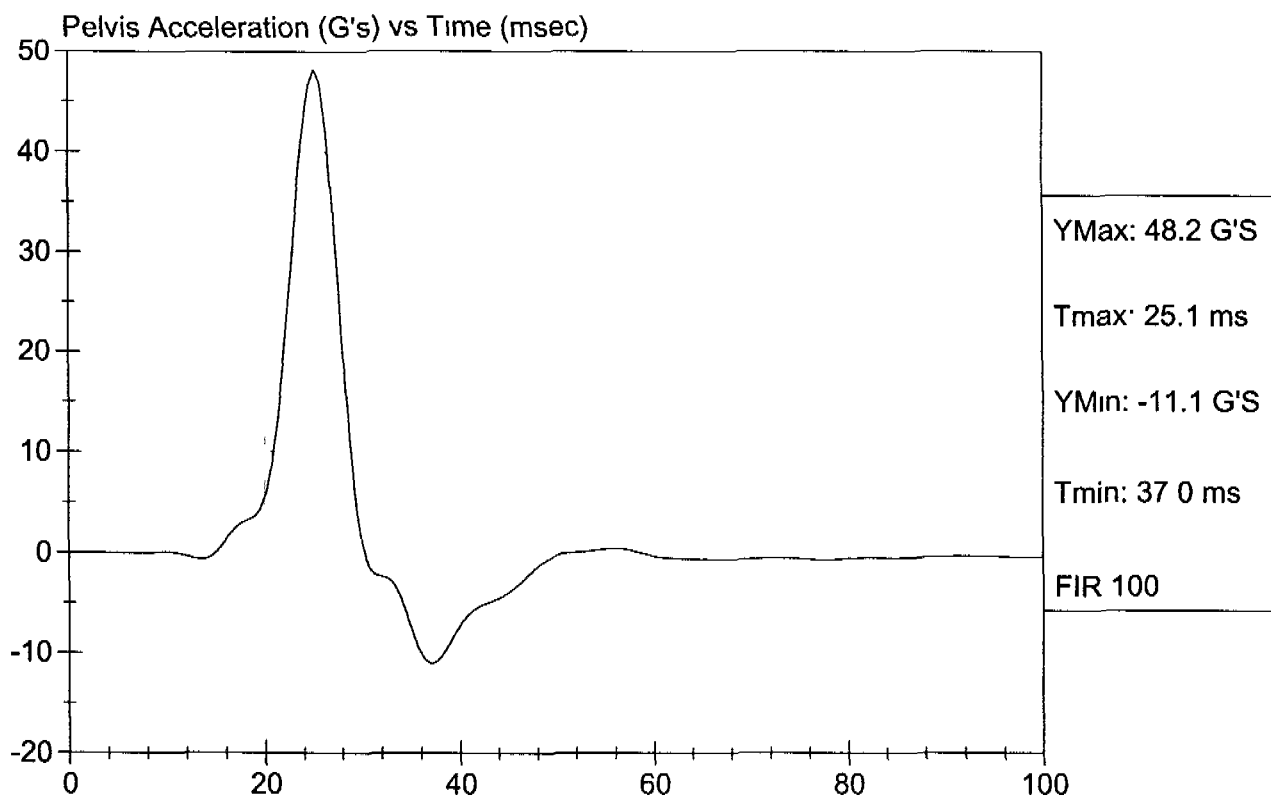
4/4/02

Test Date



Test Desc. Pelvis Impact
Component ID: D02483

Test Date: 4/4/02
Speed: 14.03 ft/sec, 4.28 m/sec

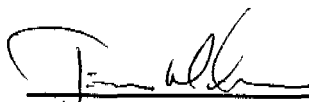


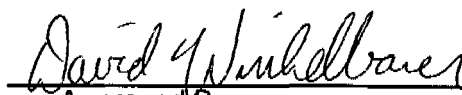
SID Calibration Data Sheet
Side Impact Dummy
Abdominal Compression Calibration (Pre-Load = 10 lbs)

ATD Serial No: 036

Test I.D.: D02484

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	24	Pass
Force At 12.7 mm	N	104 - 162	155	Pass
Force At 19 mm	N	163 - 222	207	Pass
Force At 25.4 mm	N	222 - 280	272	Pass
Force At 33 mm	N	325 - 391	376	Pass
Overall Test Results				Pass


 Laboratory Technician


 Approved By

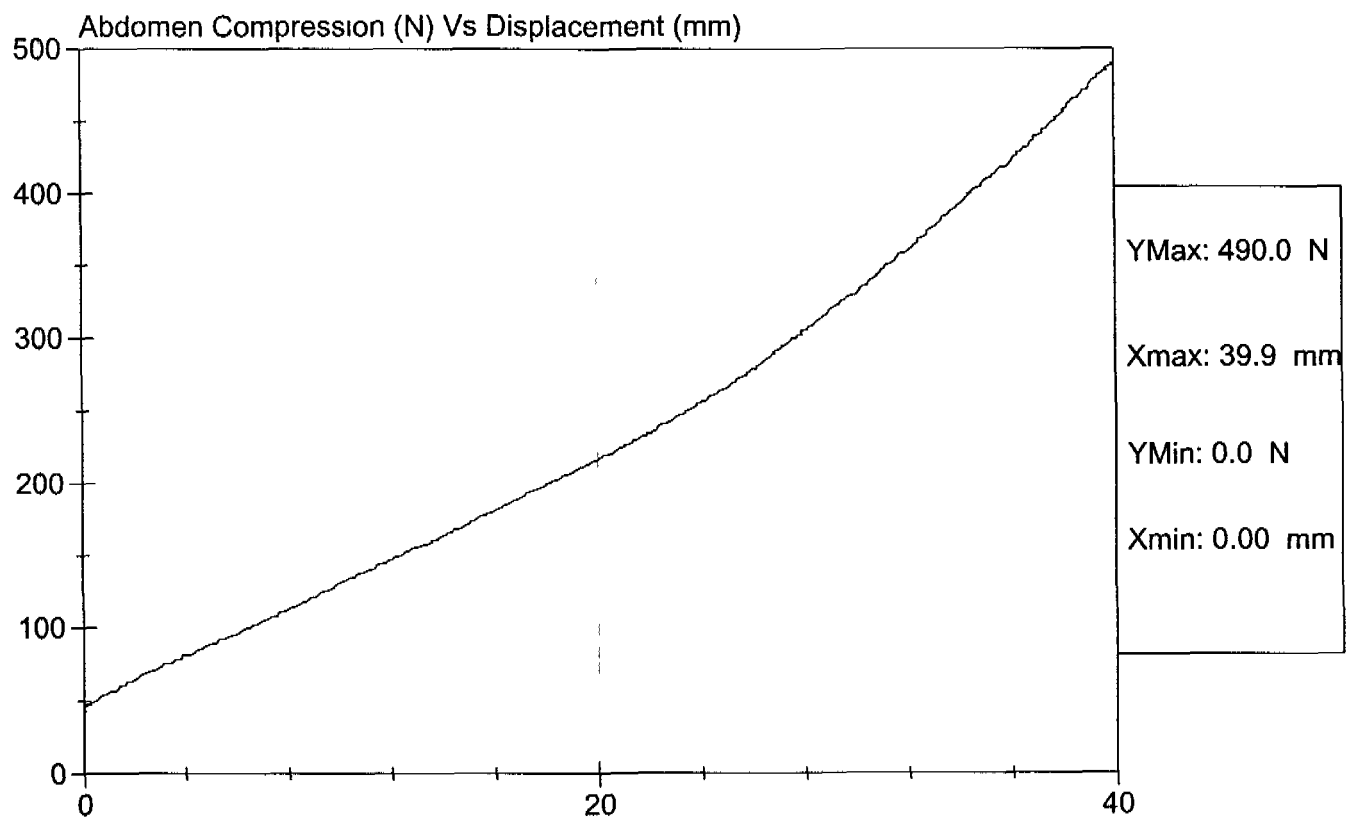
4/5/02
 Test Date



Test Description. Abdomen Compression Test Date: 4/5/02

Component. D02484

Speed: 0 ft/sec, 0 m/sec



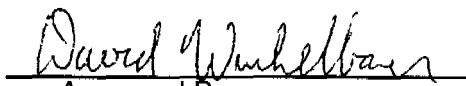
SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 036

Test I.D: D02485

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	24	Pass
Force At 0 deg	N	0 - 26 7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	115 3	Pass
Force At 30 deg	N	151.2 - 204.6	203.8	Pass
Force At 40 deg	N	204.6 - 258.0	232.0	Pass
Return Angle	Deg	12 Maximum	4	Pass
Overall Test Results				Pass


 Laboratory Technician

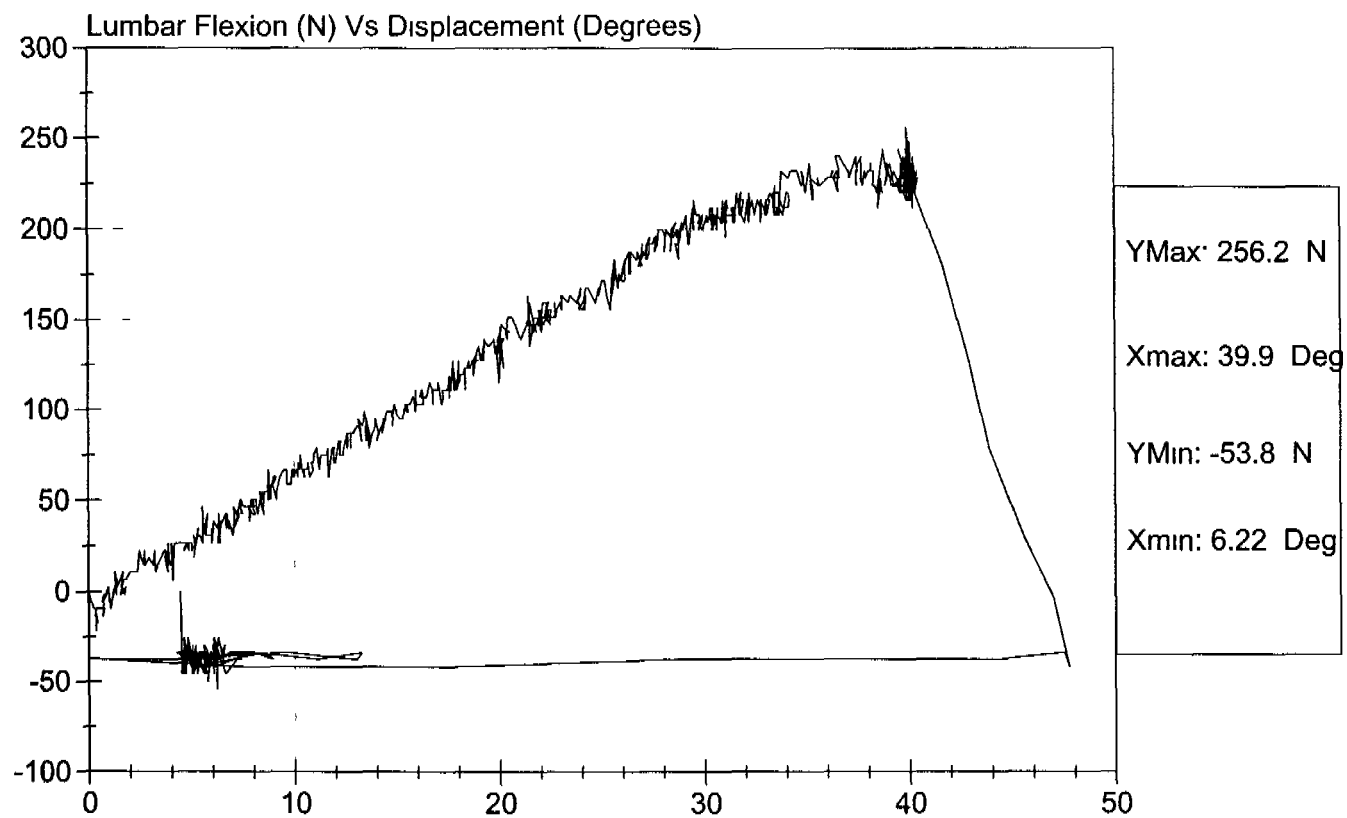

 Approved By

4/5/02
 Test Date



Test Description: Lumbar Flexion
Component: D02485

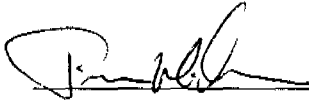
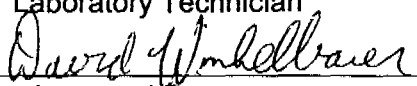
Test Date 4/5/02
Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Inspection Checklist

ATD Serial No: 036

Test Part	Items Checked	Result
Skin	Visual inspection	Pass
Head	Visual, ballast, accelerometer mount	Pass
Neck	Visual	Pass
Spine Box	Visual, ballast, accelerometer mount	Pass
Rib Cage	Visual, measure	Pass
Sternum	Visual	Pass
Lumbar Spine	Visual	Pass
Abdomen	Visual	Pass
Pelvis	Visual, palpate, accelerometer mount	Pass
Upper Legs	Visual	Pass
Knees	Visual	Pass
Lower Legs	Visual, range of motion	Pass
Ankles	Visual, range of motion	Pass
Feet	Visual, range of motion	Pass
Joints	1 to 2 g range	Pass
Other		


 Laboratory Technician

 Approved By

4/5/02
 Test Date

CERTIFICATION DATA

Dummy Serial Number: 037

CERTIFICATION DATA

Dummy Serial Number: 037

Pre-Test Calibration

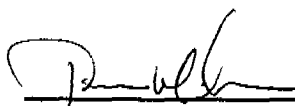
External Dimensions.	The dummy passed all external dimension requirements.
Head Drop Test:	The head passed all drop test requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvis Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

SID Calibration Data Sheet
Side Impact Dummy
External Measurements

ATD Serial No: 037

Test I.D: D0249

Tested Parameter	Units	Specification	Result	Pass/Fail
SH - Seated Height	mm	889 - 909	902	Pass
RH - Rib Height	mm	501 - 521	509	Pass
HP - Hip Pivot Height	mm	99 ref.	99	Pass
RD - Rib from Back Line	mm	229 - 241	232	Pass
KV - Knee Pivot to Back Line	mm	511 - 526	519	Pass
SW - Knee Pivot to Floor	mm	490 - 505	493	Pass
HW - Hip Width	mm	356 - 391	378	Pass
Overall Test Results				Pass


 Laboratory Technician

4/5/02
 Test Date

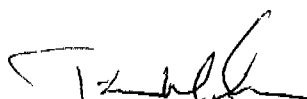

 Approved By

SID Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration

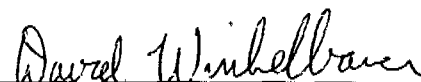
ATD Serial No: 037

Test I.D: D02491

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	22	Pass
Peak Resultant Acceleration	G's	210 to 260	228	Pass
Peak Lateral Acceleration	G's	< 10	-2	Pass
Time Above 100 G	msec	0.9 - 1.5	1.2	Pass
Overall Test Results				Pass


 Laboratory Technician

4/5/02
 Test Date

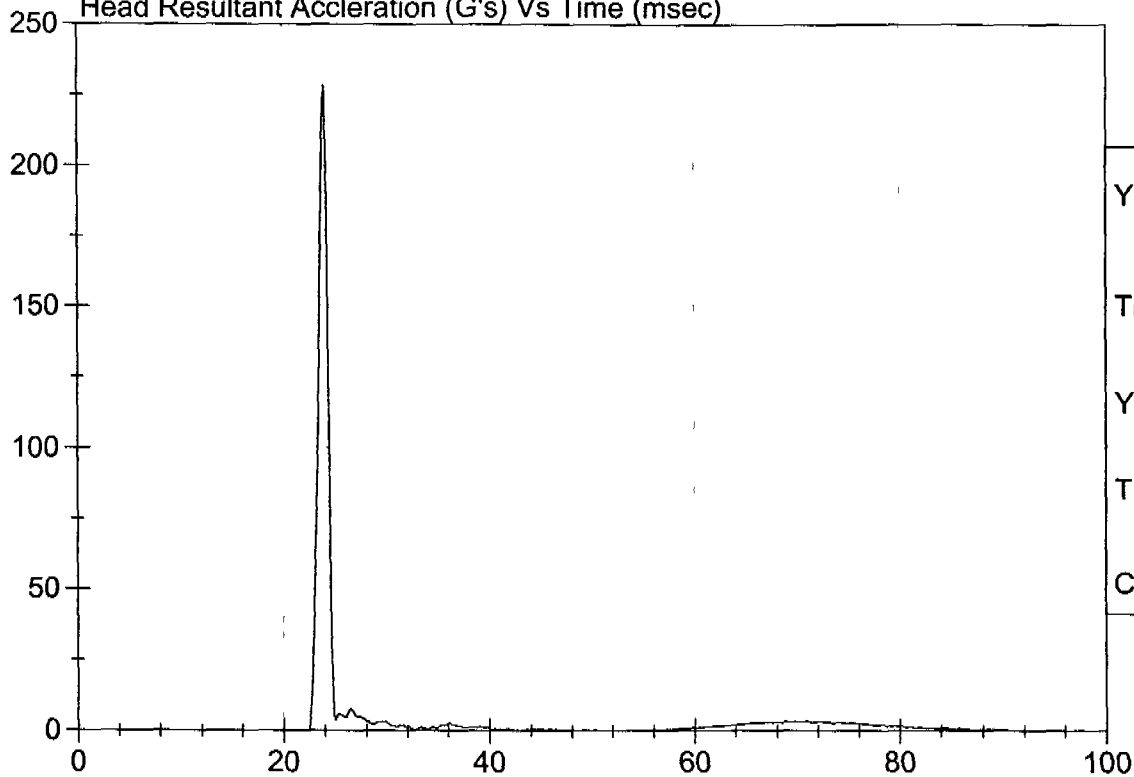

 Approved By



Test Description. Head Drop
Component. D02491

Test Date. 4/5/02
Speed: 0 ft/s, 0 m/s

Head Resultant Acceleration (G's) Vs Time (msec)



YMax: 228.4 G

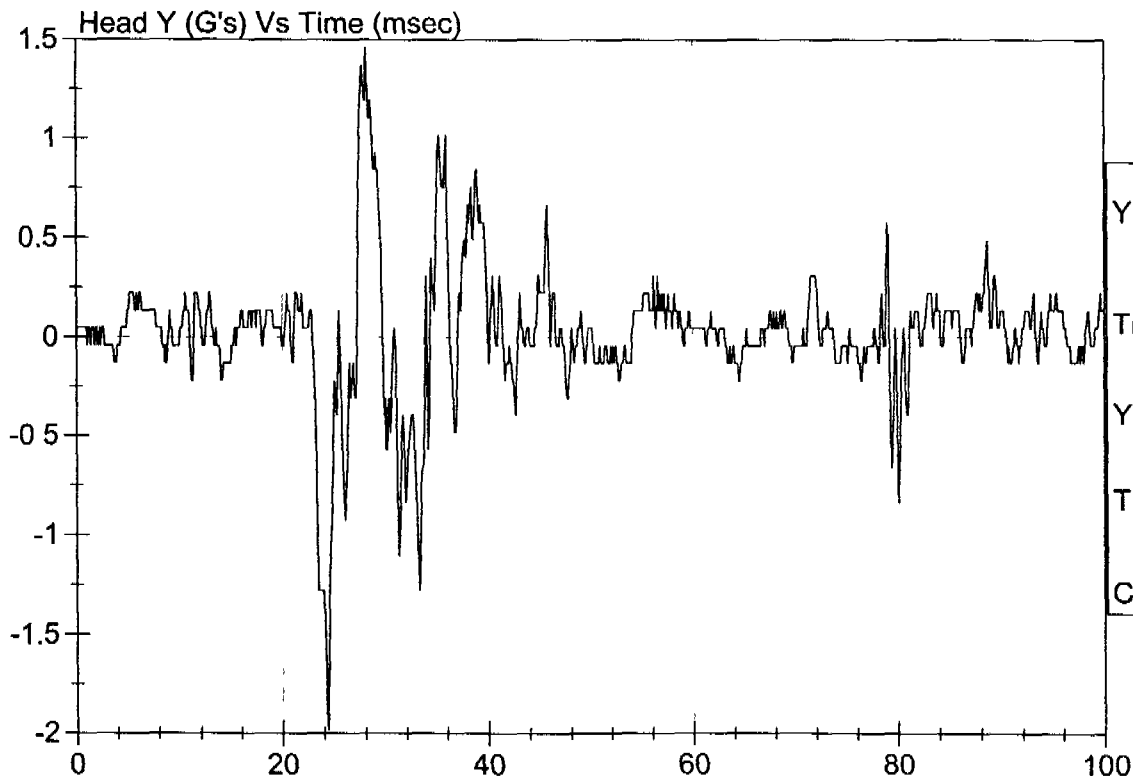
Tmax: 24.0 ms

YMin: 0.0 G

Tmin: 1.1 ms

CFC 1000

Head Y (G's) Vs Time (msec)



YMax: 1.5 G

Tmax: 28.2 ms

YMin: -2.0 G

Tmin: 24.4 ms

CFC 1000

SID Calibration Data Sheet

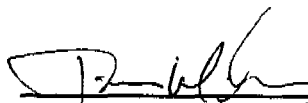
Side Impact Dummy

Thorax Impact Test

ATD Serial No: 037

Test I.D: D02492

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	29	Pass
Probe Velocity	m/s	4.27 - 4.33	4.30	Pass
Upper Rib	G's	37 - 46	44	Pass
Lower Rib	G's	37 - 46	45	Pass
Lower Spine	G's	15 - 22	20	Pass
Overall Test Results				Pass


Laboratory Technician

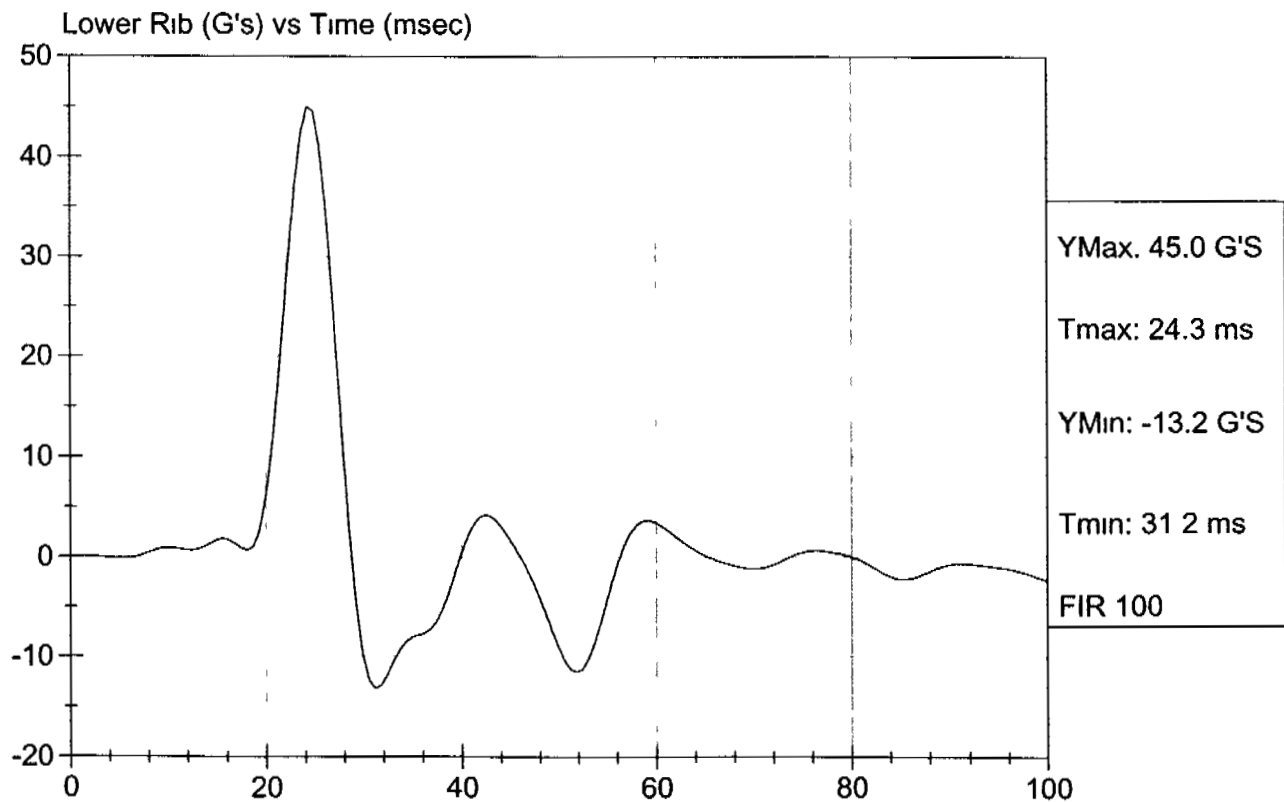
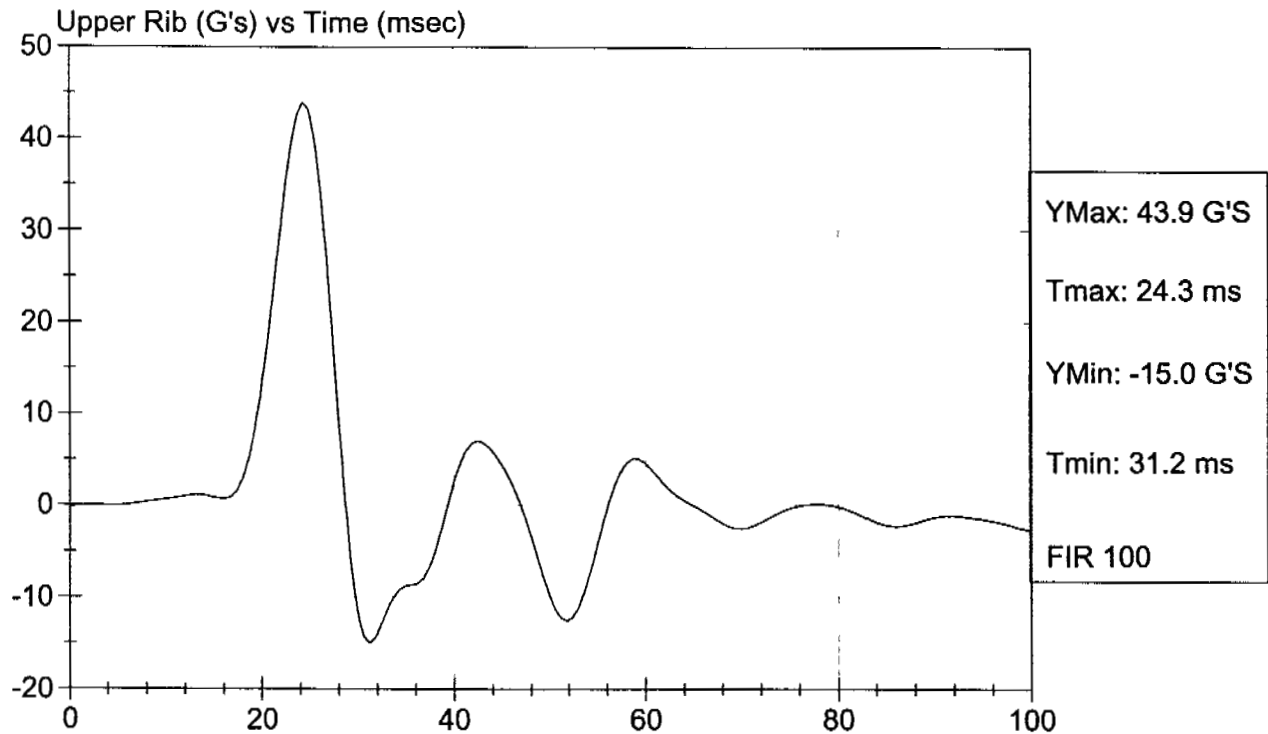
4/4/02
Test Date


Approved By



Test Desc. Thorax Impact
Component ID. D02492

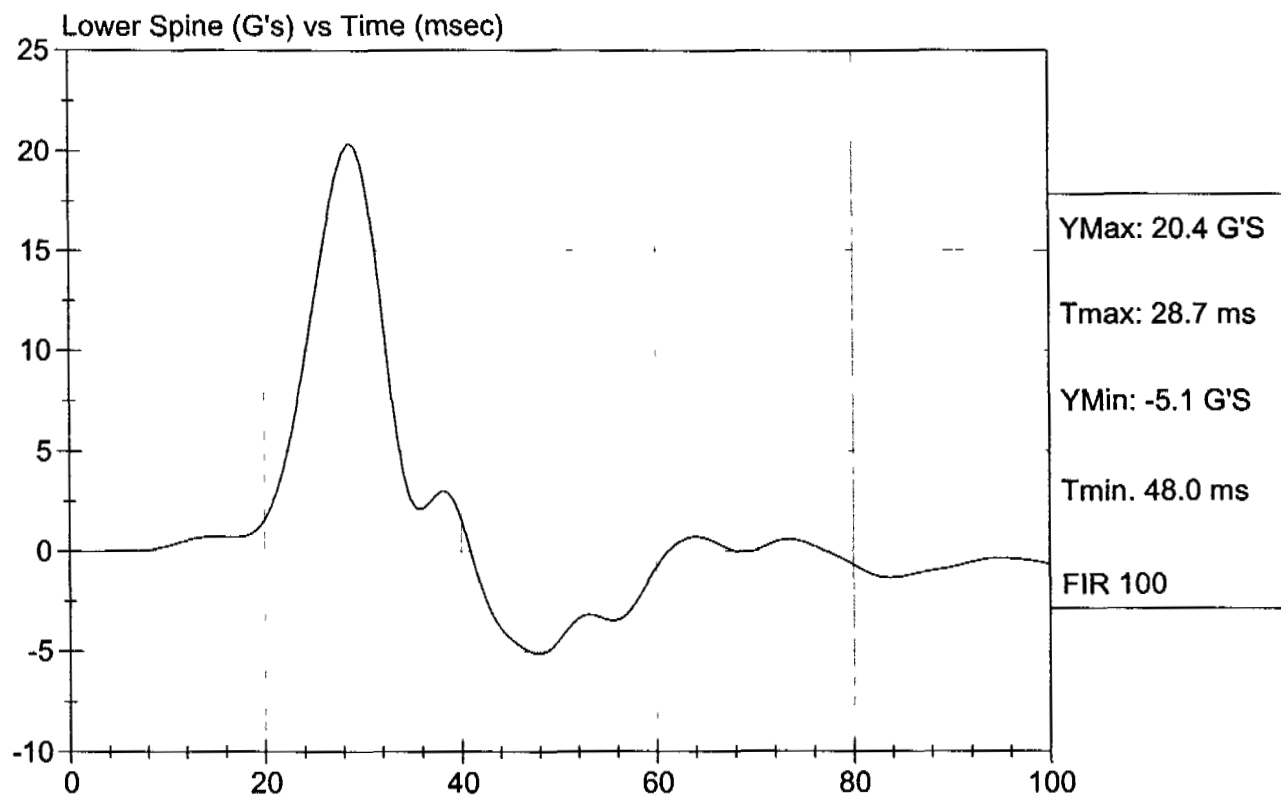
Test Date: 4/4/02
Speed: 14.11 ft/sec, 4.30 m/sec





Test Desc: Thorax Impact
Component ID: D02492

Test Date: 4/4/02
Speed: 14.11 ft/sec, 7.02 m/sec

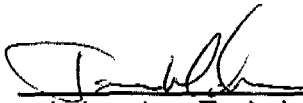


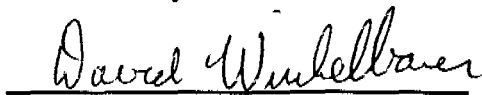
SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 037

Test I.D: D02493

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	29	Pass
Probe Velocity	m/s	4.27 - 4.33	4.29	Pass
Pelvis Acceleration	G's	40 - 60	44	Pass
Overall Test Results				Pass


Laboratory Technician

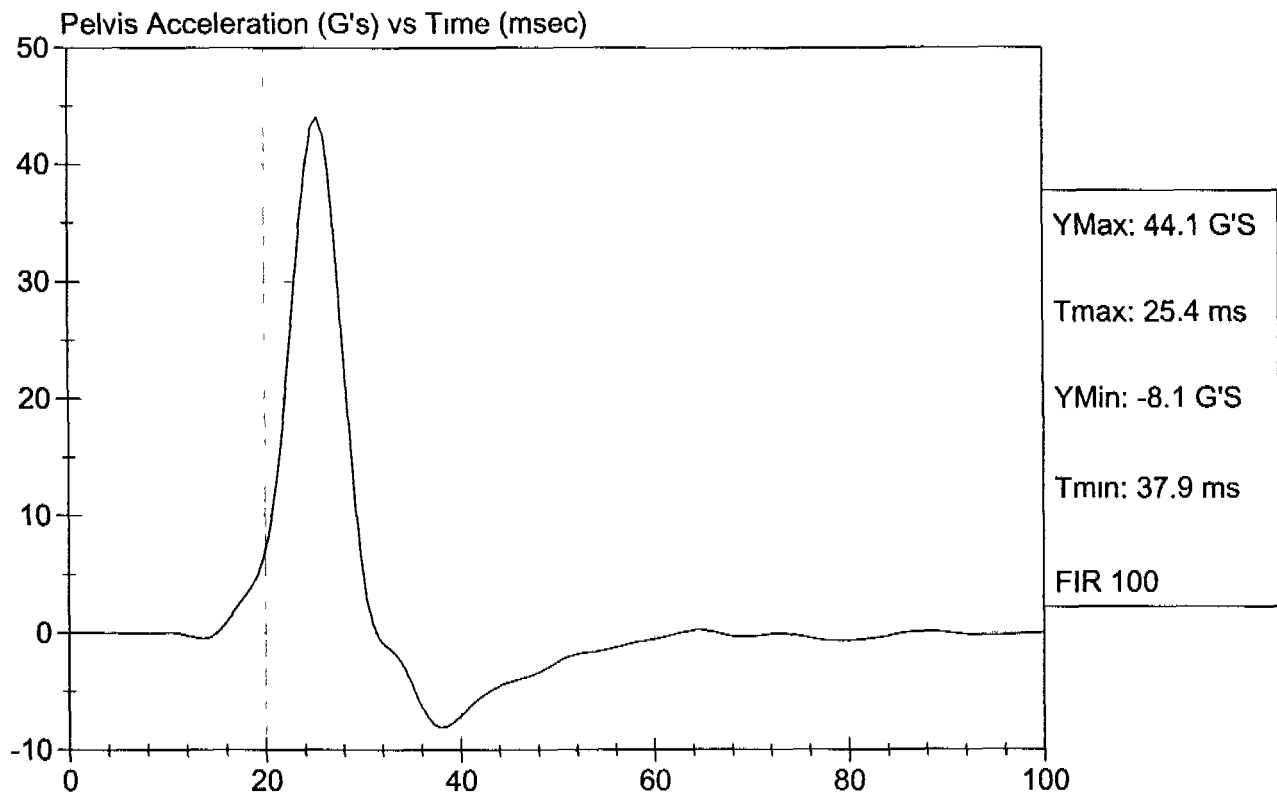

Approved By

4/4/02
Test Date



Test Desc. Pelvis Impact
Component ID: D02493

Test Date. 4/4/02
Speed 14.08 ft/sec, 4.29 m/sec

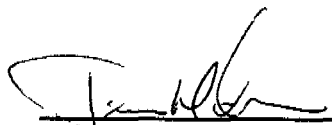


SID Calibration Data Sheet
Side Impact Dummy
Abdominal Compression Calibration (Pre-Load = 10 lbs)

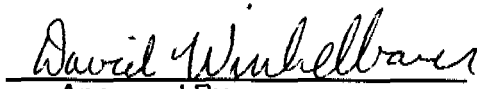
ATD Serial No: 037

Test I.D: D02494

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	24	Pass
Force At 12.7 mm	N	104 - 162	138	Pass
Force At 19 mm	N	163 - 222	191	Pass
Force At 25.4 mm	N	222 - 280	258	Pass
Force At 33 mm	N	325 - 391	358	Pass
Overall Test Results				Pass


 Laboratory Technician

4/5/02
 Test Date

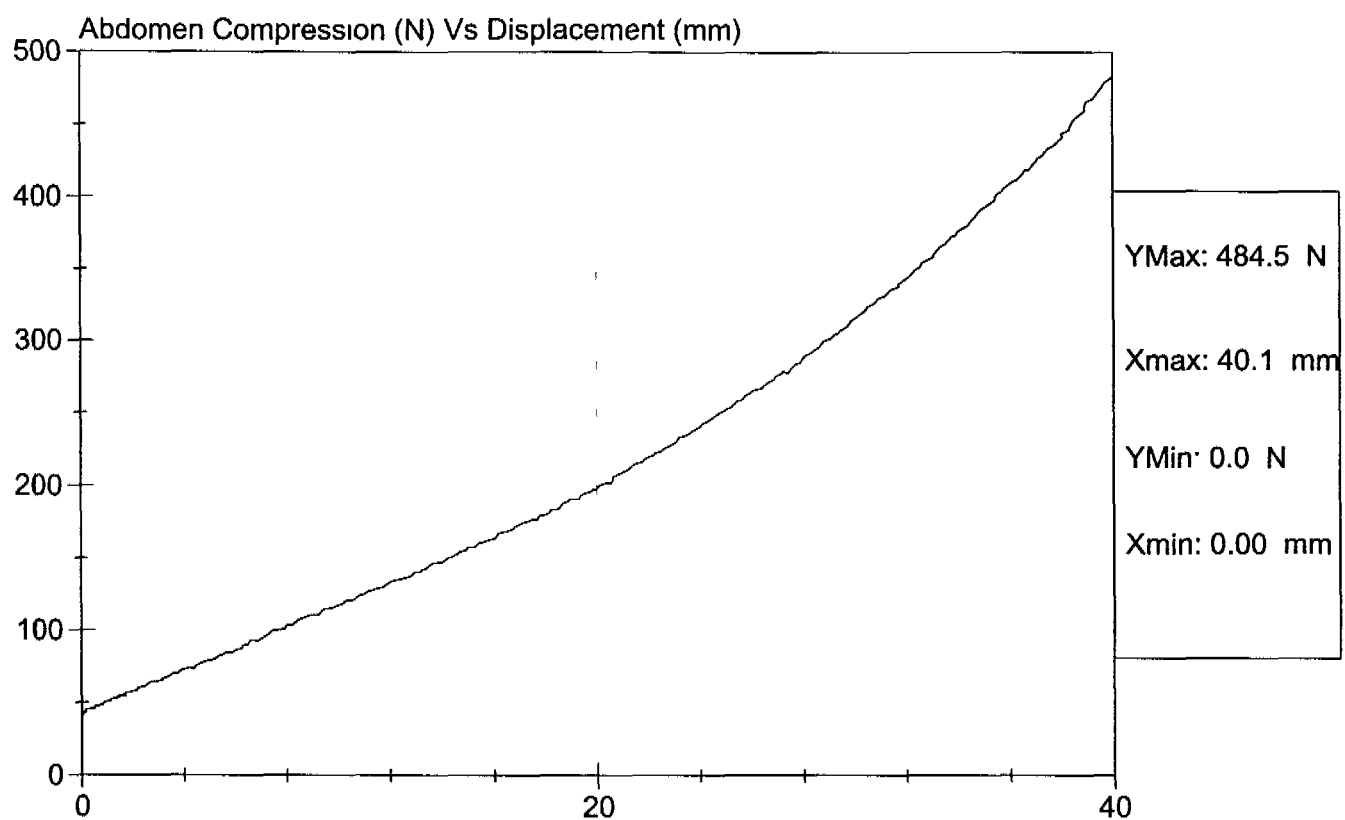

 Approved By



Test Description: Abdomen Compression Test Date: 4/5/02

Component: D02494

Speed: 0 ft/sec, 0 m/sec

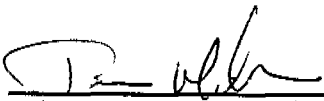


SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 037

Test I.D: D02495

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	24	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	98.9	Pass
Force At 30 deg	N	151.2 - 204.6	159.3	Pass
Force At 40 deg	N	204.6 - 258.0	211.6	Pass
Return Angle	Deg	12 Maximum	3	Pass
Overall Test Results				Pass


 Laboratory Technician

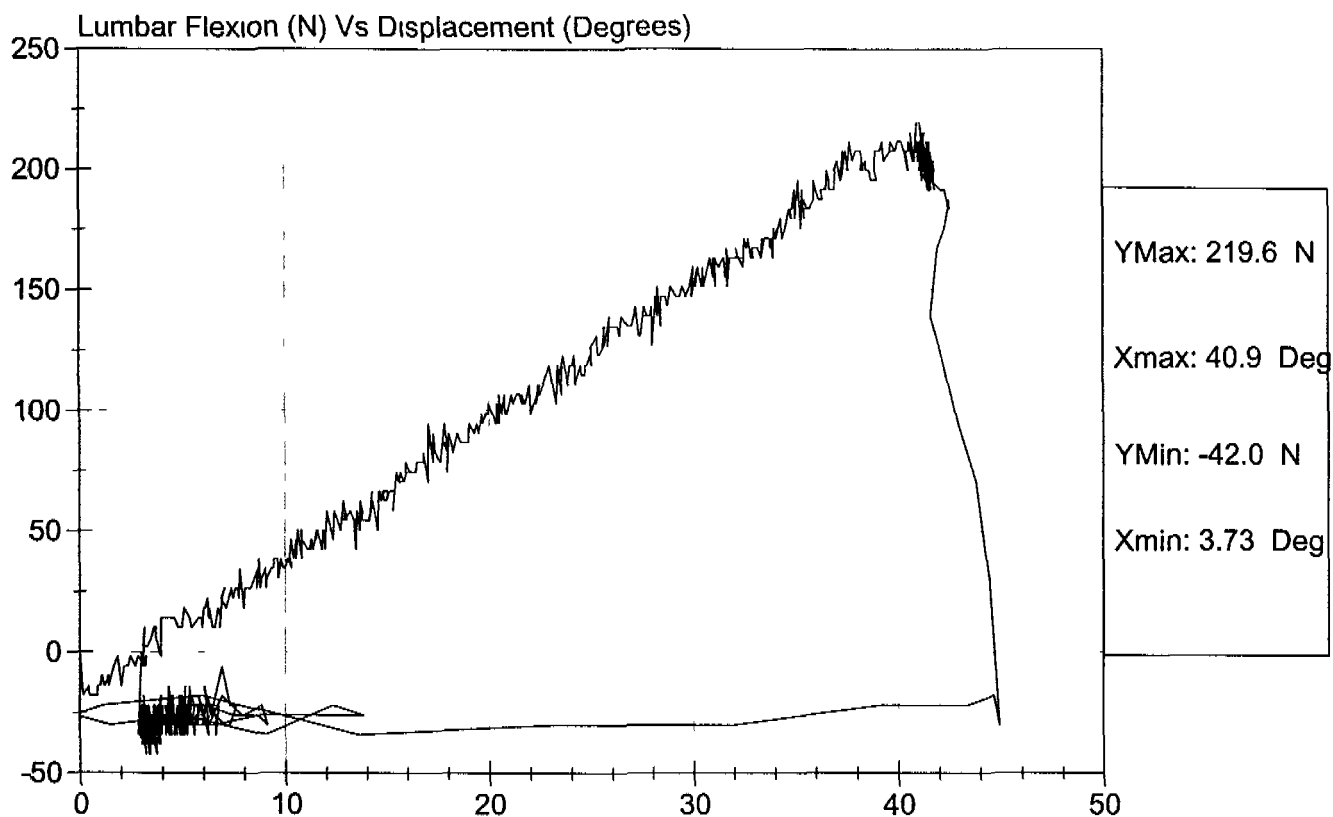
4/4/02
 Test Date


 Approved By



Test Description: Lumbar Flexion
Component D02495

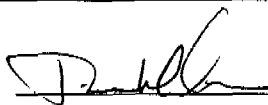
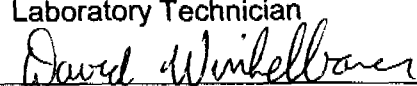
Test Date 4/4/02
Speed. 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Inspection Checklist

ATD Serial No: 037

Test Part	Items Checked	Result
Skin	Visual inspection	Pass
Head	Visual, ballast, accelerometer mount	Pass
Neck	Visual	Pass
Spine Box	Visual, ballast, accelerometer mount	Pass
Rib Cage	Visual, measure	Pass
Sternum	Visual	Pass
Lumbar Spine	Visual	Pass
Abdomen	Visual	Pass
Pelvis	Visual, palpate, accelerometer mount	Pass
Upper Legs	Visual	Pass
Knees	Visual	Pass
Lower Legs	Visual, range of motion	Pass
Ankles	Visual, range of motion	Pass
Feet	Visual, range of motion	Pass
Joints	1 to 2 g range	Pass
Other		


 Laboratory Technician

 Approved By

4/5/02
 Test Date

CERTIFICATION DATA

Dummy Serial Number: 036

CERTIFICATION DATA

Dummy Serial Number: 036

Post-Test Calibration

External Dimensions:	The dummy passed all external dimension requirements.
Head Drop Test:	The head passed all drop test requirements
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvis Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

SID Calibration Data Sheet
Side Impact Dummy
External Measurements

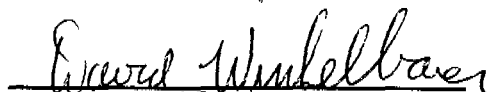
ATD Serial No: 036

Test I.D: D0256

Tested Parameter	Units	Specification	Result	Pass/Fail
SH - Seated Height	mm	889 - 909	903	Pass
RH - Rib Height	mm	501 - 521	506	Pass
HP - Hip Pivot Height	mm	99 ref.	99	Pass
RD - Rib from Back Line	mm	229 - 241	232	Pass
KV - Knee Pivot to Back Line	mm	511 - 526	518	Pass
SW - Knee Pivot to Floor	mm	490 - 505	497	Pass
HW - Hip Width	mm	356 - 391	370	Pass
Overall Test Results				Pass


 Laboratory Technician

4/15/02
 Test Date

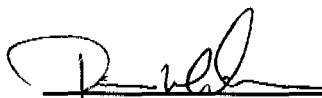

 Approved By

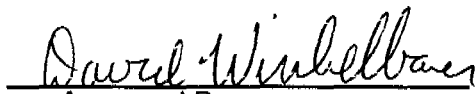
SID Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration

ATD Serial No: 036

Test I.D: D02561

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	22.2	Pass
Laboratory Relative Humidity	%	10 to 70	42	Pass
Peak Resultant Acceleration	G's	210 to 260	232	Pass
Peak Lateral Acceleration	G's	< 10	10	Pass
Time Above 100 G	msec	0.9 - 1.5	1.2	Pass
Overall Test Results				Pass


 Laboratory Technician


 Approved By

04/12/2002
 Test Date



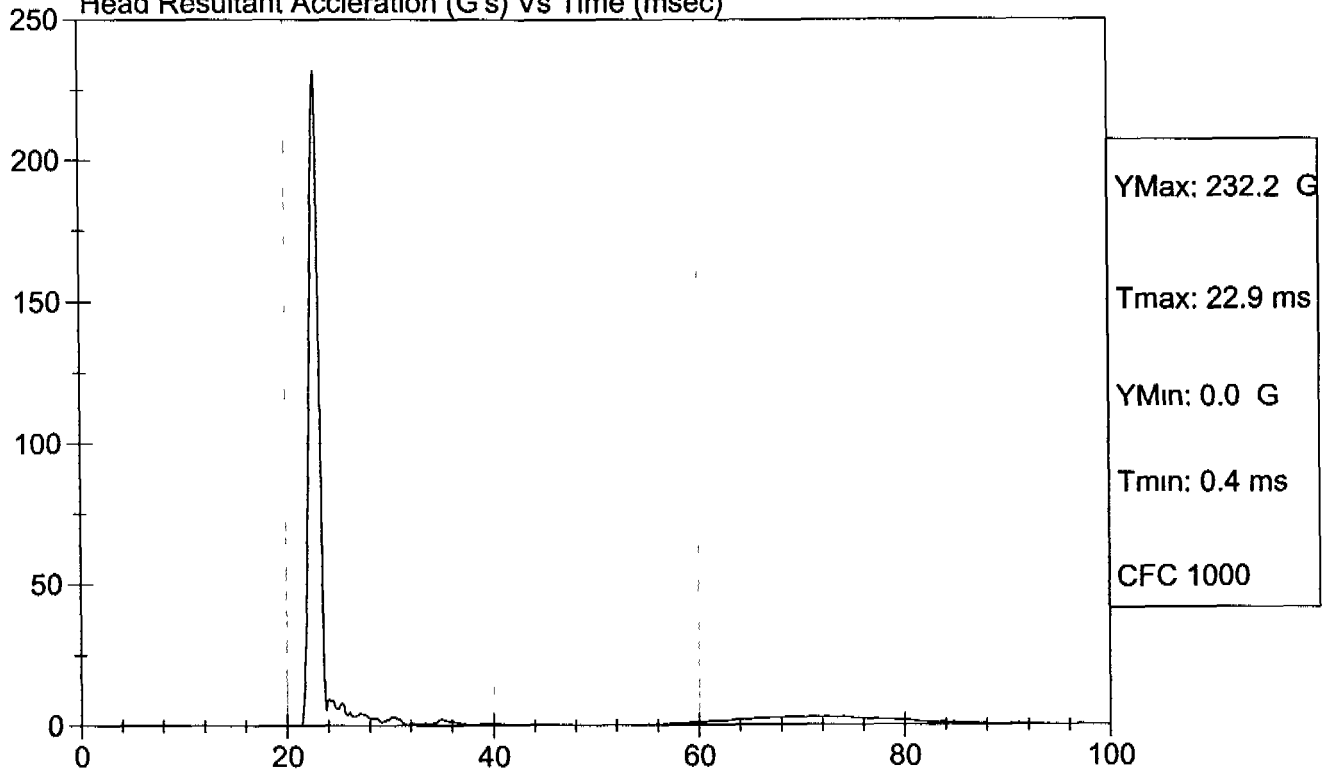
Test Description: Head Drop

Test Date: 04/12/2002

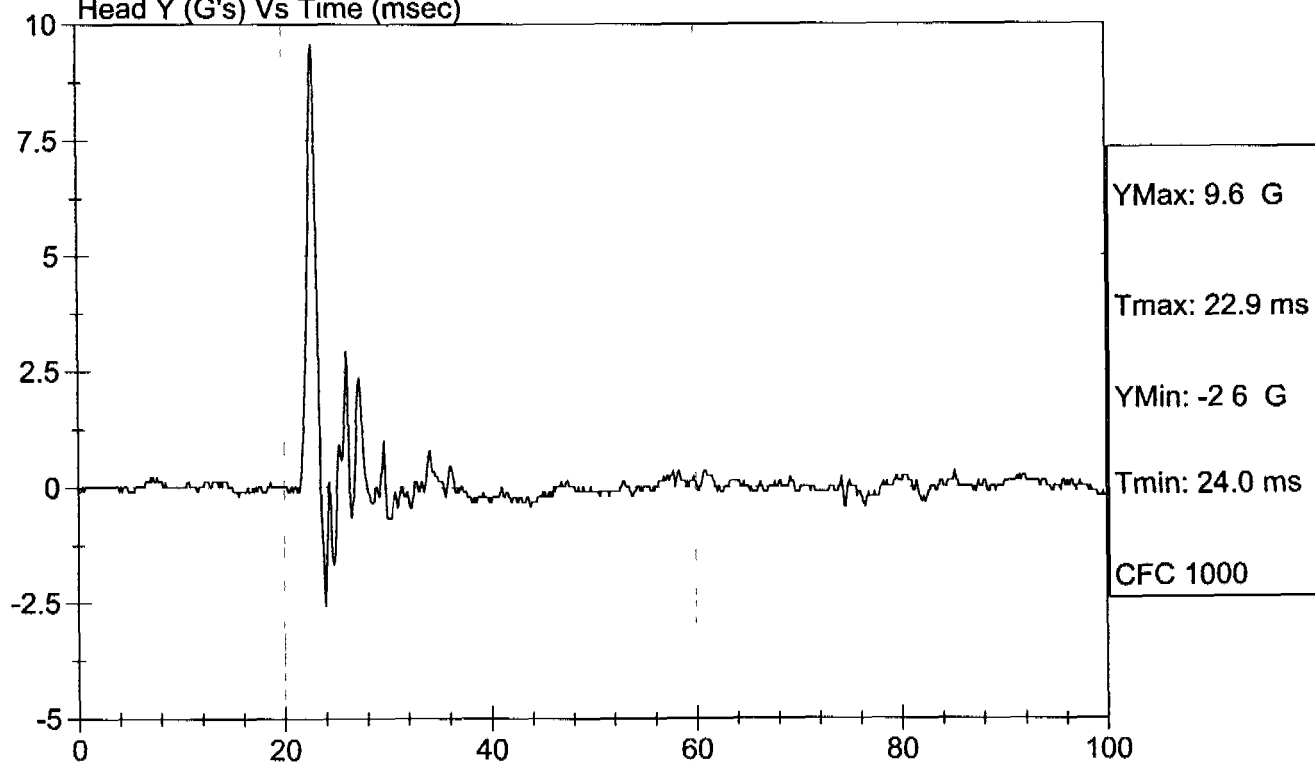
Component: D02561

Speed: 0 ft/s, 0 m/s

Head Resultant Acceleration (G's) Vs Time (msec)



Head Y (G's) Vs Time (msec)



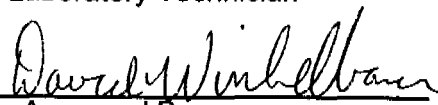
SID Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 036

Test I.D.: D02562

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	38	Pass
Probe Velocity	m/s	4.27 - 4.33	4.28	Pass
Upper Rib	G's	37 - 46	45	Pass
Lower Rib	G's	37 - 46	44	Pass
Lower Spine	G's	15 - 22	18	Pass
Overall Test Results				Pass


 Laboratory Technician

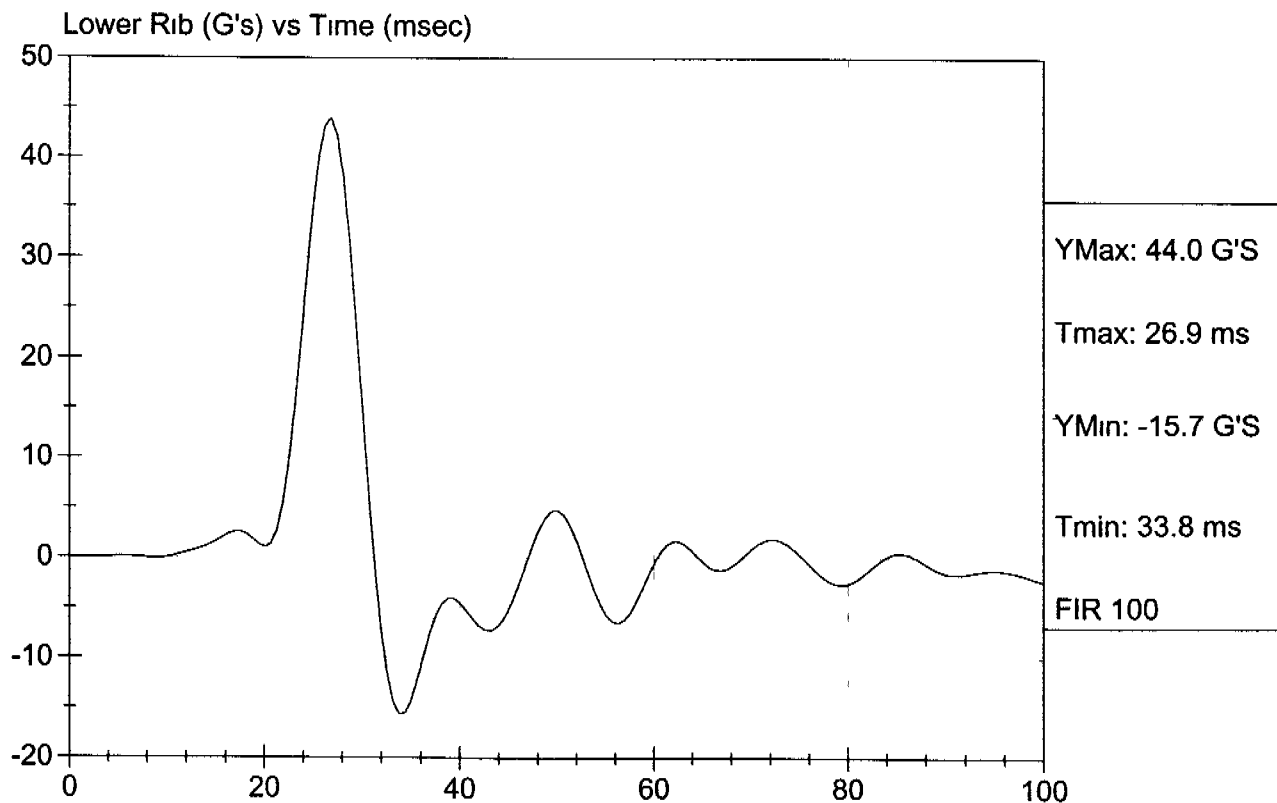
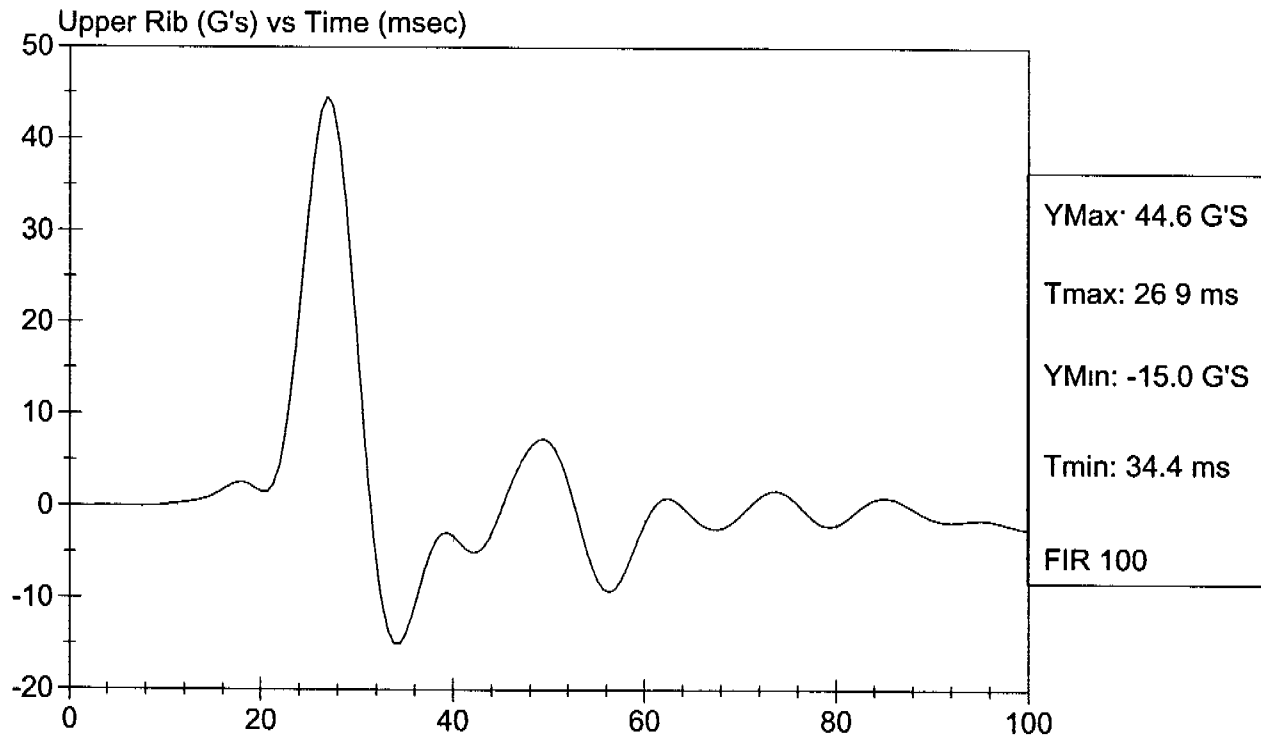

 Approved By

4/12/02
 Test Date



Test Desc. Thorax Impact
Component ID: D02562

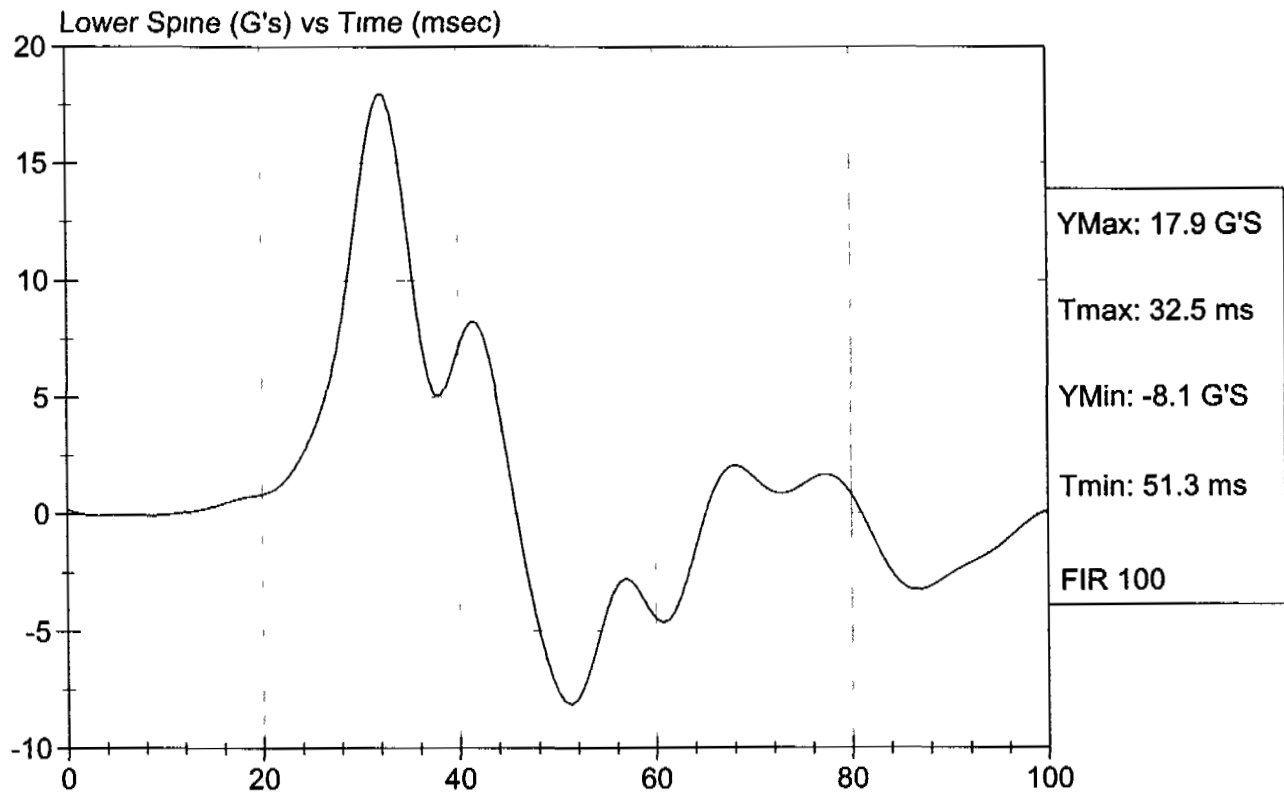
Test Date: 4/12/02
Speed: 14 04 ft/sec, 4.28 m/sec





Test Desc: Thorax Impact
Component ID: D02562

Test Date: 4/12/02
Speed: 14.04 ft/sec, 7.02 m/sec

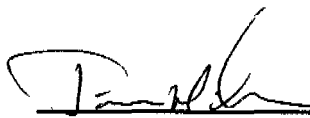


SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

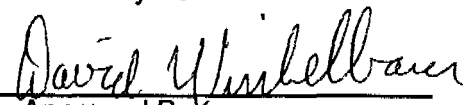
ATD Serial No: 036

Test I.D: D02563

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	38	Pass
Probe Velocity	m/s	4.27 - 4.33	4.28	Pass
Pelvis Acceleration	G's	40 - 60	45	Pass
Overall Test Results				Pass



Laboratory Technician



Approved By

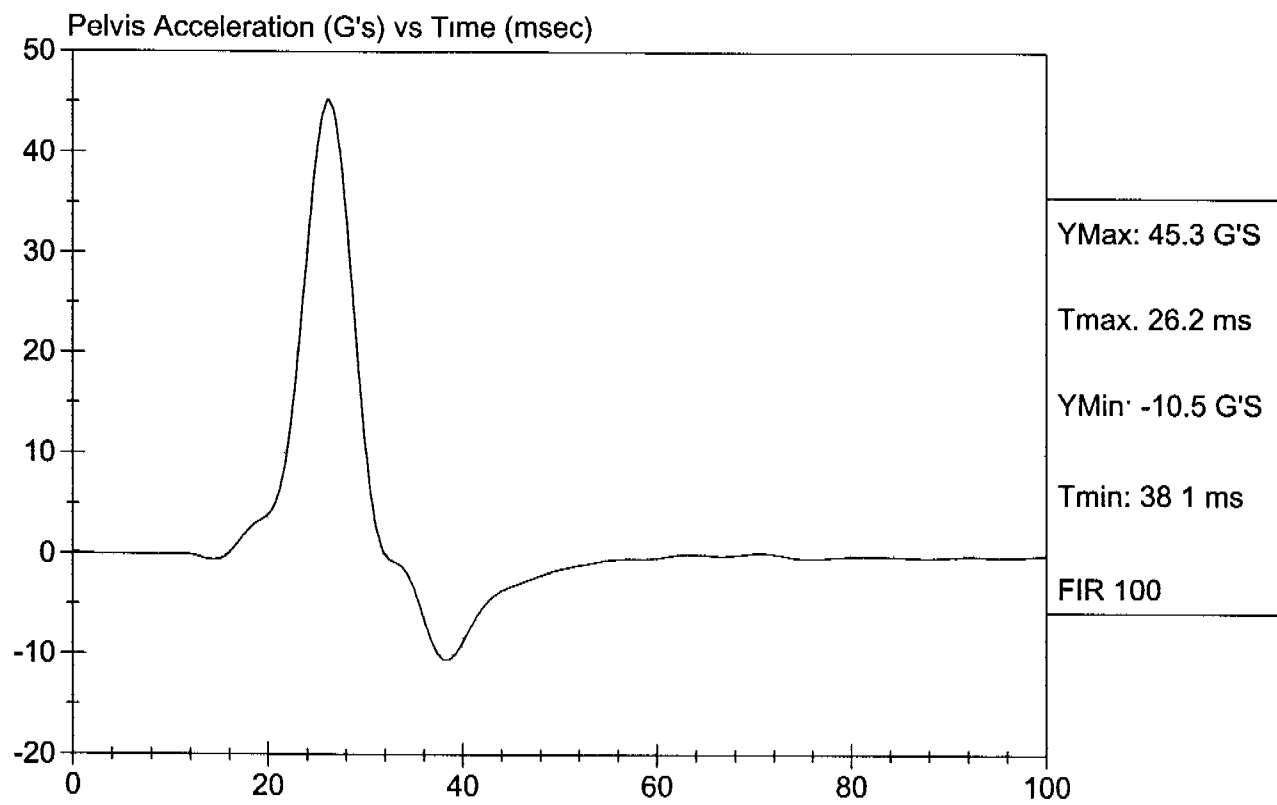
4/12/02

Test Date



Test Desc: Pelvis Impact
Component ID: D02563

Test Date: 4/12/02
Speed 14.03 ft/sec, 4.28 m/sec

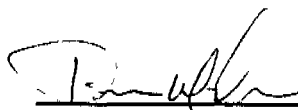


SID Calibration Data Sheet
Side Impact Dummy
Abdominal Compression Calibration (Pre-Load = 10 lbs)

ATD Serial No: 036

Test I.D.: D02564

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	22.6	Pass
Laboratory Relative Humidity	%	10 to 70	38	Pass
Force At 12.7 mm	N	104 - 162	152	Pass
Force At 19 mm	N	163 - 222	204	Pass
Force At 25.4 mm	N	222 - 280	270	Pass
Force At 33 mm	N	325 - 391	372	Pass
Overall Test Results				Pass



Laboratory Technician



Approved By

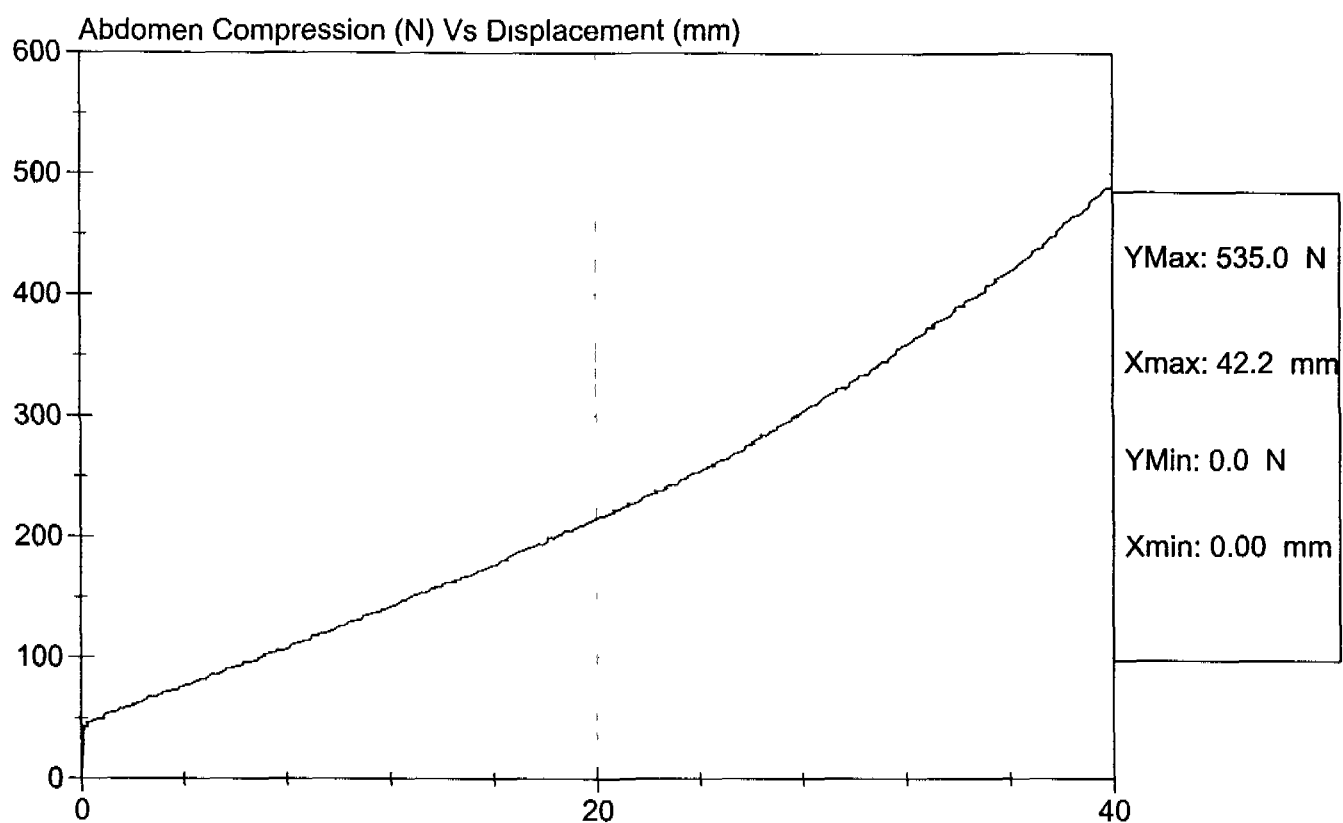
4/12/02
Test Date



Test Description: Abdomen Compression Test Date: 4/12/02

Component: D02564

Speed: 0 ft/sec, 0 m/sec

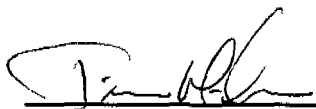


SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

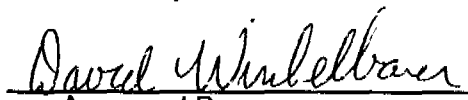
ATD Serial No: 036

Test I.D: D02565

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	22.4	Pass
Laboratory Relative Humidity	%	10 to 70	41	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	114.2	Pass
Force At 30 deg	N	151.2 - 204.6	174.6	Pass
Force At 40 deg	N	204.6 - 258.0	255.1	Pass
Return Angle	Deg	12 Maximum	3	Pass
Overall Test Results				Pass



Laboratory Technician



Approved By

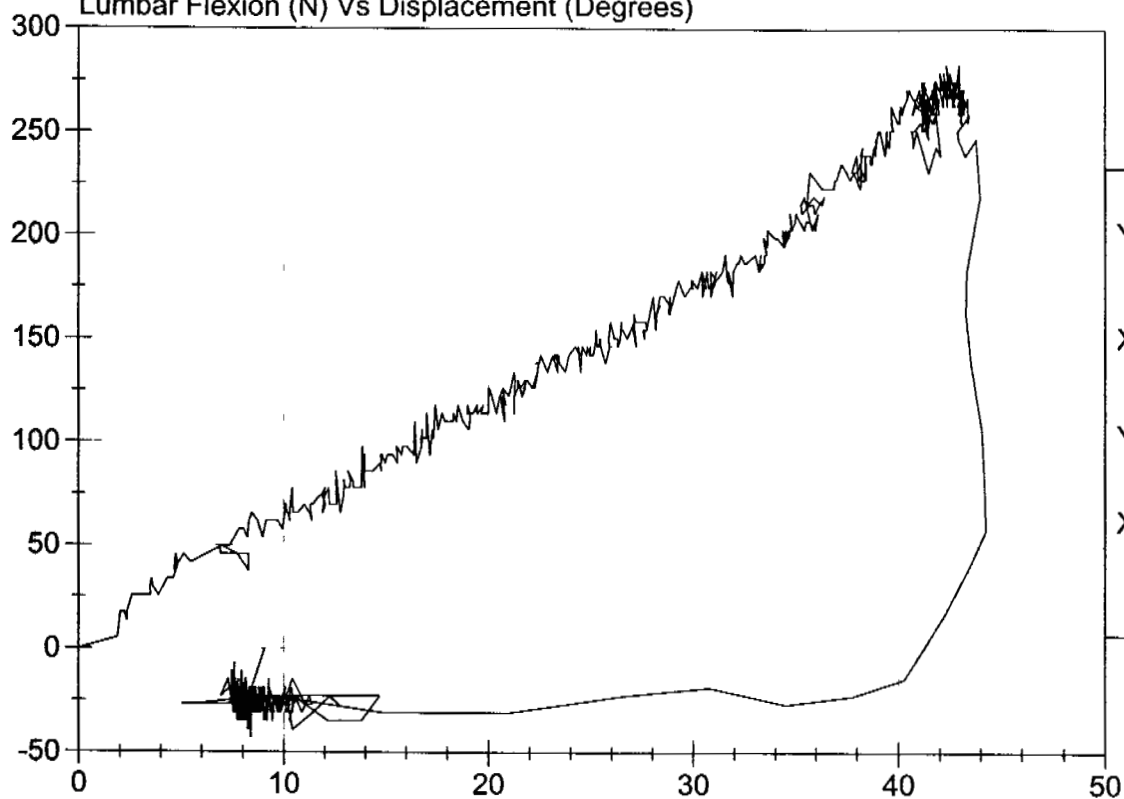
4/12/02
Test Date



Test Description: Lumbar Flexion
Component: D02565

Test Date 4/12/02
Speed: 0 ft/sec, 0 m/sec

Lumbar Flexion (N) Vs Displacement (Degrees)



YMax: 283.3 N

Xmax: 42.3 Deg

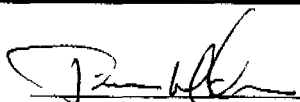
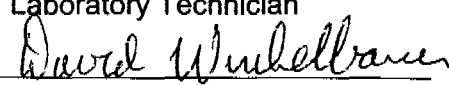
YMin: -42.8 N

Xmin: 8.40 Deg

SID Calibration Data Sheet
Side Impact Dummy
Inspection Checklist

ATD Serial No: 036

Test Part	Items Checked	Result
Skin	Visual inspection	Pass
Head	Visual, ballast, accelerometer mount	Pass
Neck	Visual	Pass
Spine Box	Visual, ballast, accelerometer mount	Pass
Rib Cage	Visual, measure	Pass
Sternum	Visual	Pass
Lumbar Spine	Visual	Pass
Abdomen	Visual	Pass
Pelvis	Visual, palpate, accelerometer mount	Pass
Upper Legs	Visual	Pass
Knees	Visual	Pass
Lower Legs	Visual, range of motion	Pass
Ankles	Visual, range of motion	Pass
Feet	Visual, range of motion	Pass
Joints	1 to 2 g range	Pass
Other		


 Laboratory Technician

 Approved By

4/12/02
 Test Date

CERTIFICATION DATA

Dummy Serial Number: 037

CERTIFICATION DATA

Dummy Serial Number: 037

Post-Test Calibration

External Dimensions:	The dummy passed all external dimension requirements.
Head Drop Test:	The head passed all drop test requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvis Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

SID Calibration Data Sheet
Side Impact Dummy
External Measurements

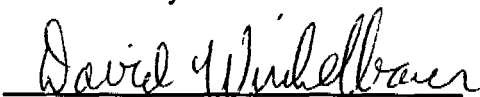
ATD Serial No: 037

Test I.D: D0257

Tested Parameter	Units	Specification	Result	Pass/Fail
SH - Seated Height	mm	889 - 909	902	Pass
RH - Rib Height	mm	501 - 521	509	Pass
HP - Hip Pivot Height	mm	99 ref	99	Pass
RD - Rib from Back Line	mm	229 - 241	232	Pass
KV - Knee Pivot to Back Line	mm	511 - 526	519	Pass
SW - Knee Pivot to Floor	mm	490 - 505	493	Pass
HW - Hip Width	mm	356 - 391	378	Pass
Overall Test Results				Pass



Laboratory Technician



Approved By

4/15/02

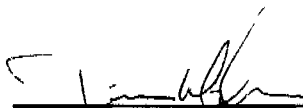
Test Date

SID Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration

ATD Serial No: 037

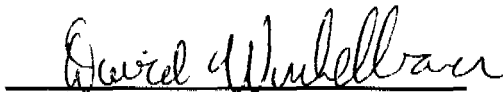
Test I.D: D02571

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	42	Pass
Peak Resultant Acceleration	G's	210 to 260	211	Pass
Peak Lateral Acceleration	G's	< 10	6	Pass
Time Above 100 G	msec	0.9 - 1.5	1.3	Pass
Overall Test Results				Pass



Laboratory Technician

04/15/2002
Test Date



Approved By



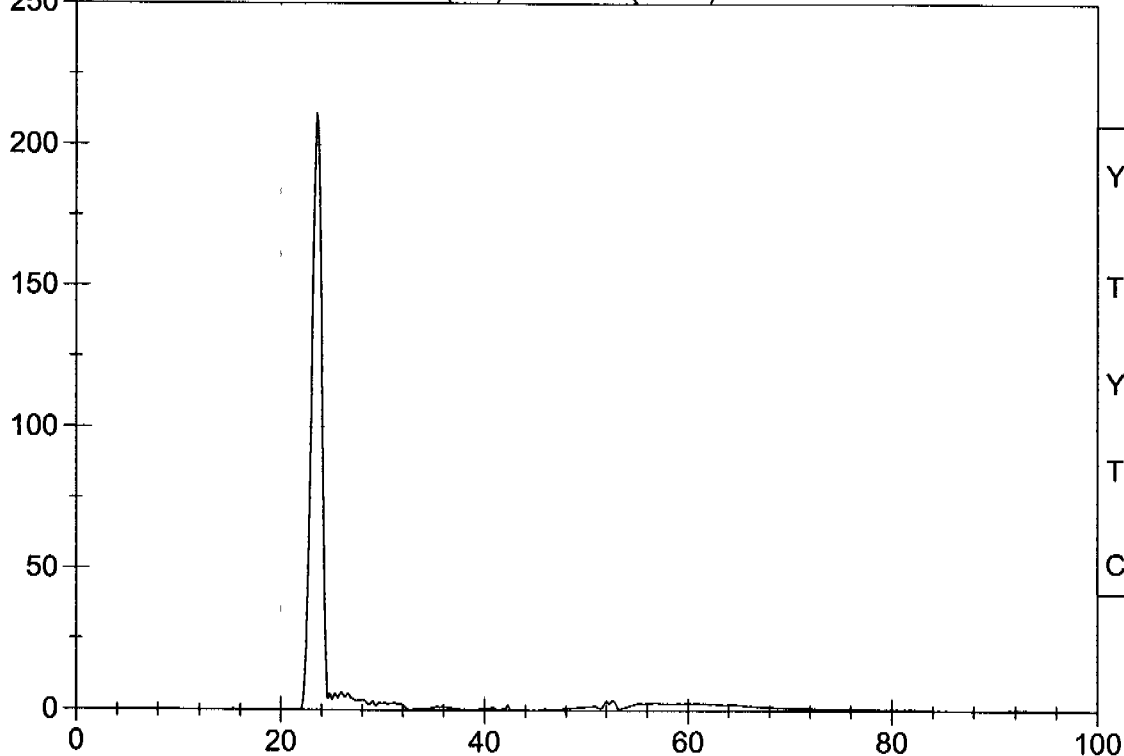
Test Description: Head Drop

Test Date: 04/15/2002

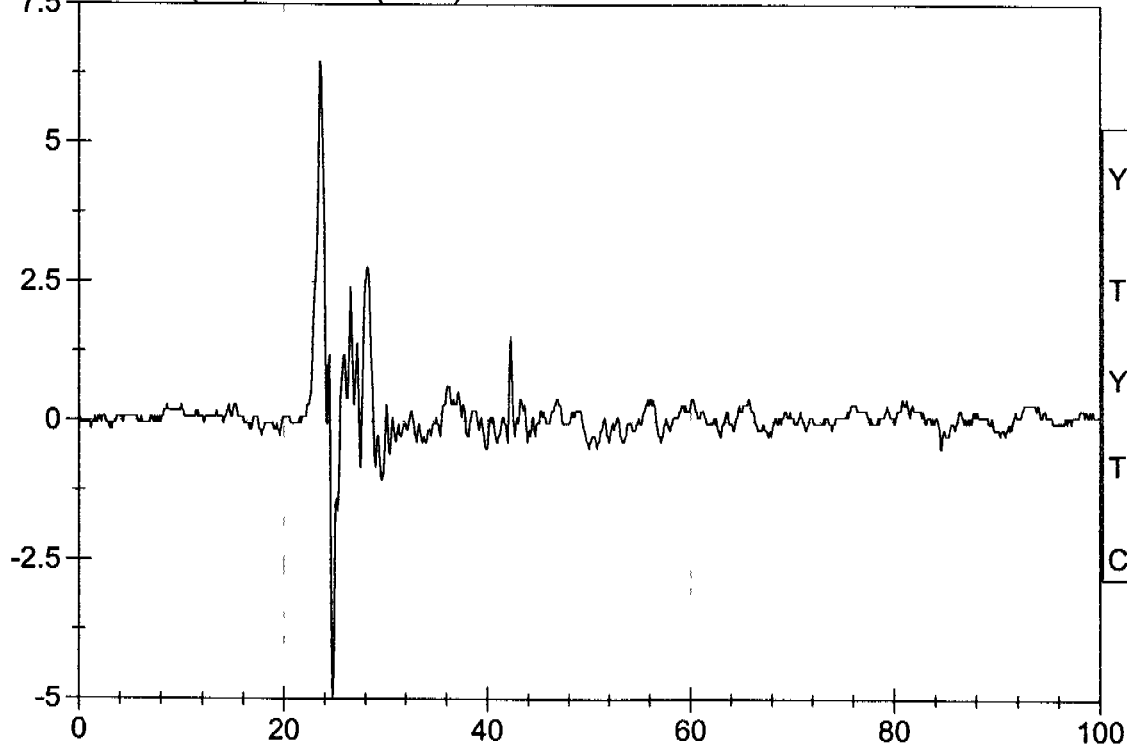
Component: D02571

Speed: 0 ft/s, 0 m/s

Head Resultant Acceleration (G's) Vs Time (msec)



Head Y (G's) Vs Time (msec)

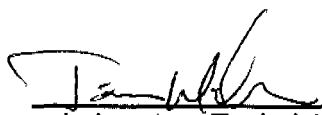


SID Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 037

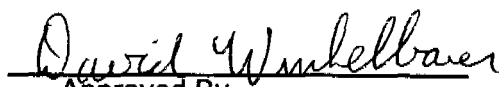
Test I.D: D02572

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	38	Pass
Probe Velocity	m/s	4.27 - 4.33	4.27	Pass
Upper Rib	G's	37 - 46	42	Pass
Lower Rib	G's	37 - 46	45	Pass
Lower Spine	G's	15 - 22	21	Pass
Overall Test Results				Pass



Laboratory Technician

04/12/2002
Test Date

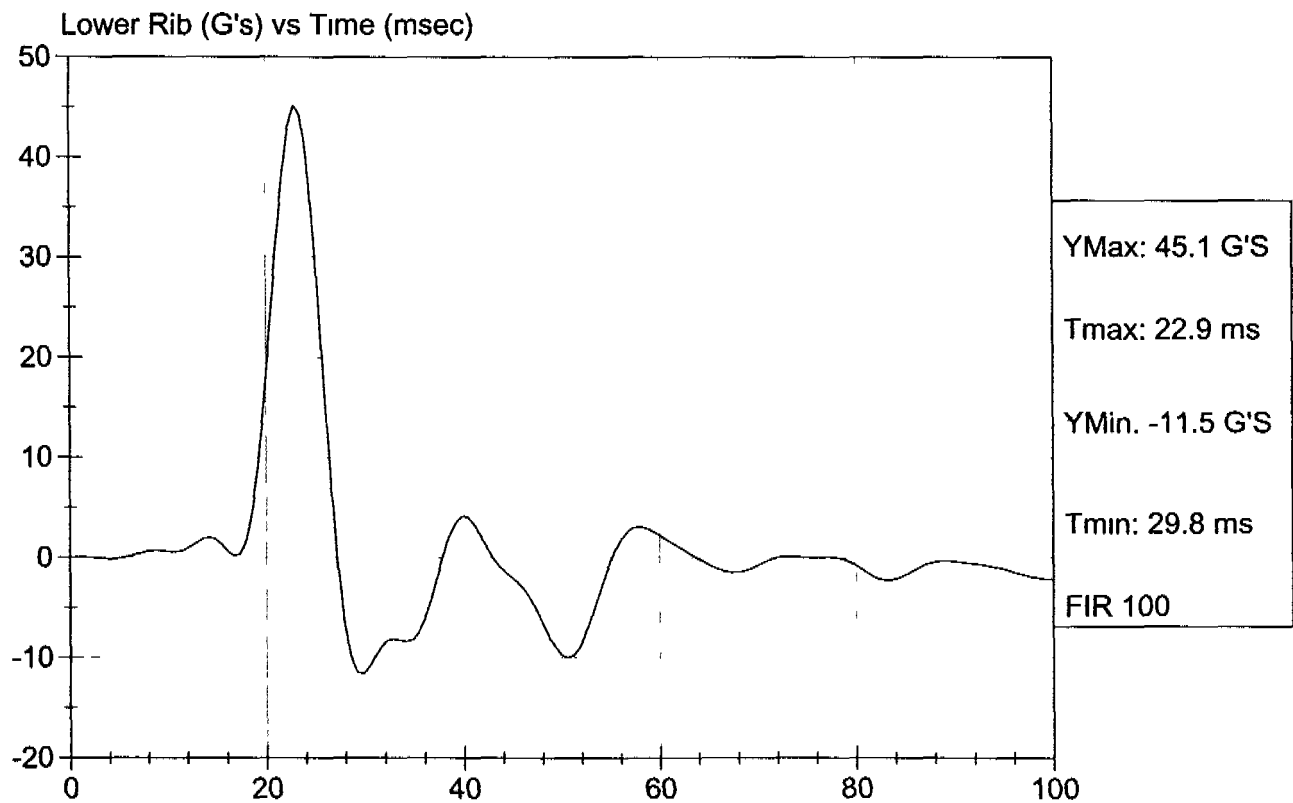
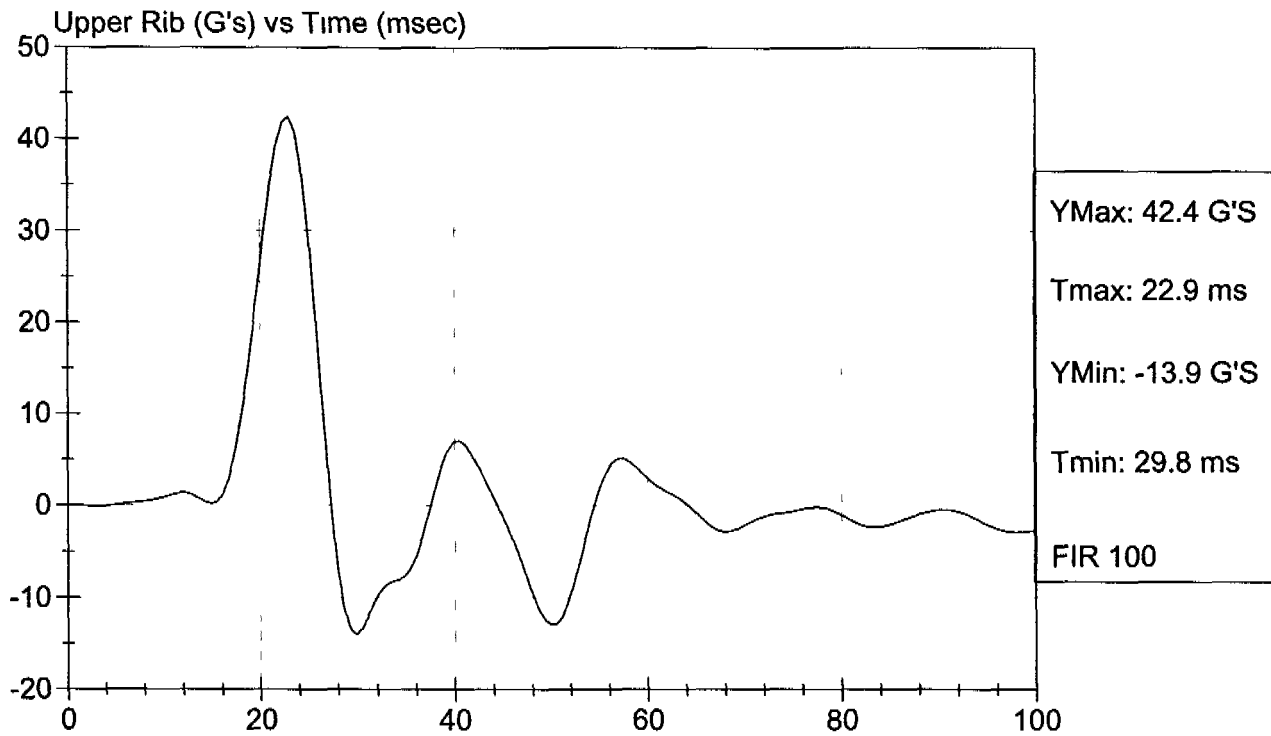


Approved By



Test Desc: Thorax Impact
Component ID: D02572

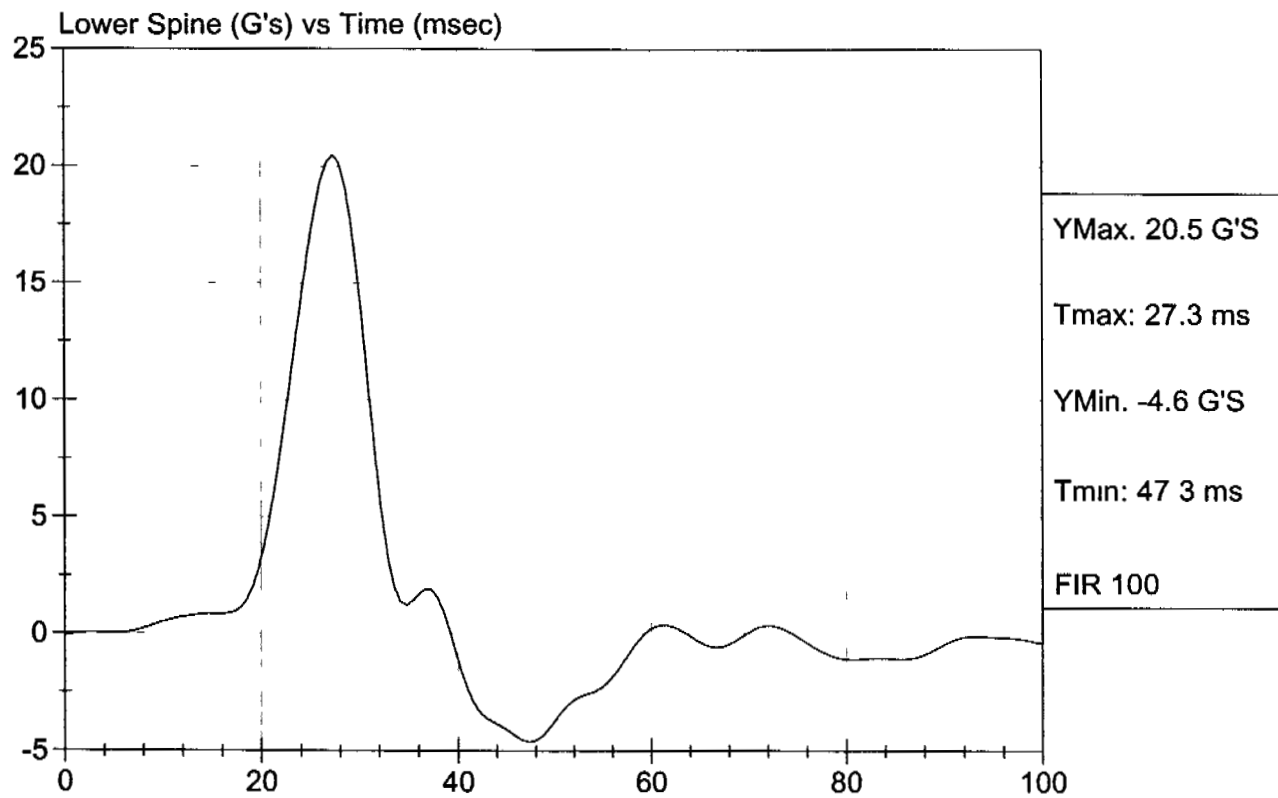
Test Date: 04/12/2002
Speed: 14 02 ft/sec, 4.27 m/sec





Test Desc: Thorax Impact
Component ID: D02572

Test Date: 4/12/02
Speed: 14.02 ft/sec, 7.02 m/sec

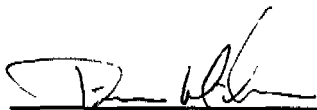


SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 037

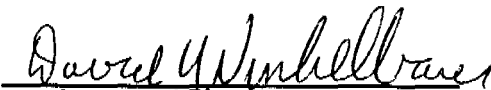
Test I.D: D02573

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	38	Pass
Probe Velocity	m/s	4.27 - 4.33	4.27	Pass
Pelvis Acceleration	G's	40 - 60	47	Pass
Overall Test Results				Pass



Laboratory Technician

04/12/2002
Test Date

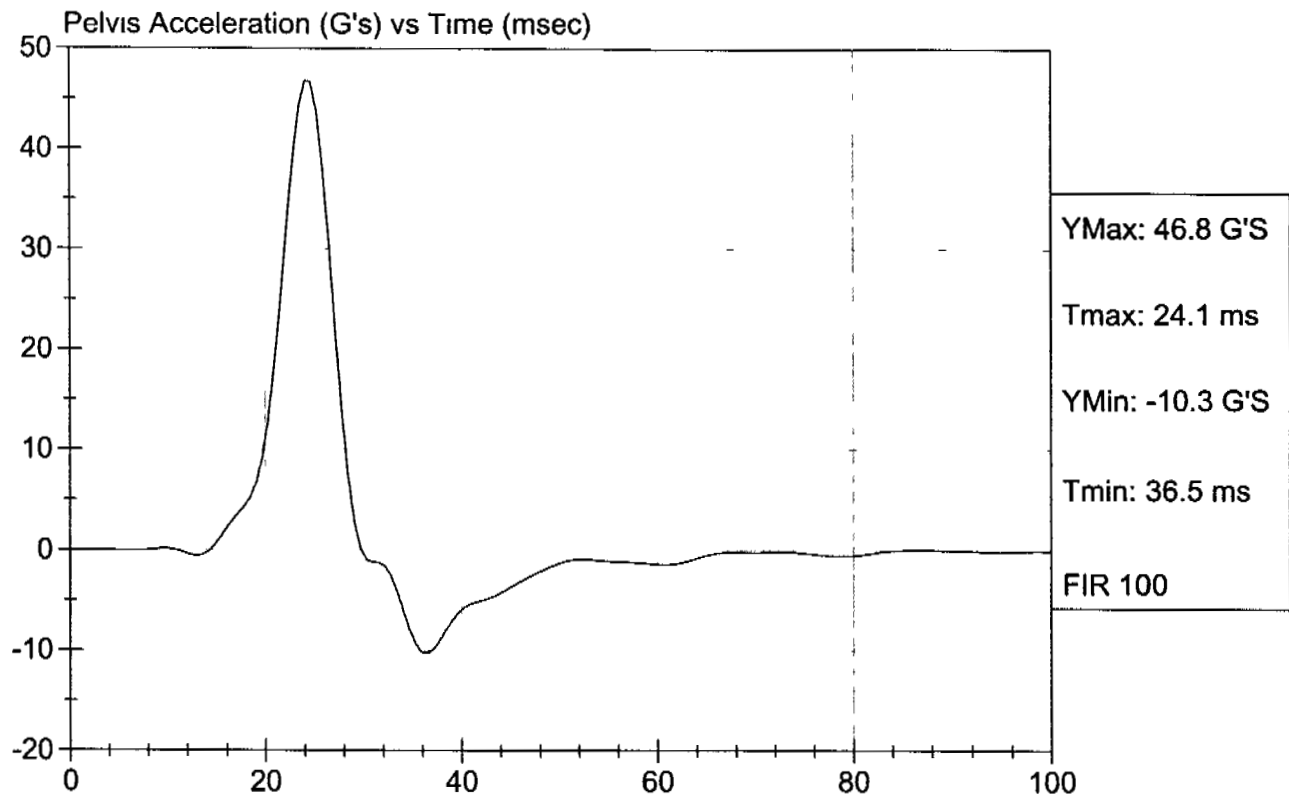


Approved By



Test Desc: Pelvis Impact
Component ID: D02573

Test Date: 04/12/2002
Speed: 14.02 ft/sec, 4.27 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Abdominal Compression Calibration (Pre-Load = 10 lbs)

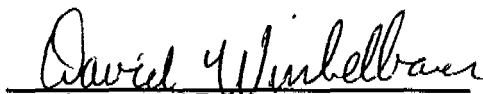
ATD Serial No: 037

Test I.D: D02574

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	22.6	Pass
Laboratory Relative Humidity	%	10 to 70	38	Pass
Force At 12.7 mm	N	104 - 162	133	Pass
Force At 19 mm	N	163 - 222	185	Pass
Force At 25.4 mm	N	222 - 280	247	Pass
Force At 33 mm	N	325 - 391	347	Pass
Overall Test Results				Pass



Laboratory Technician



Approved By

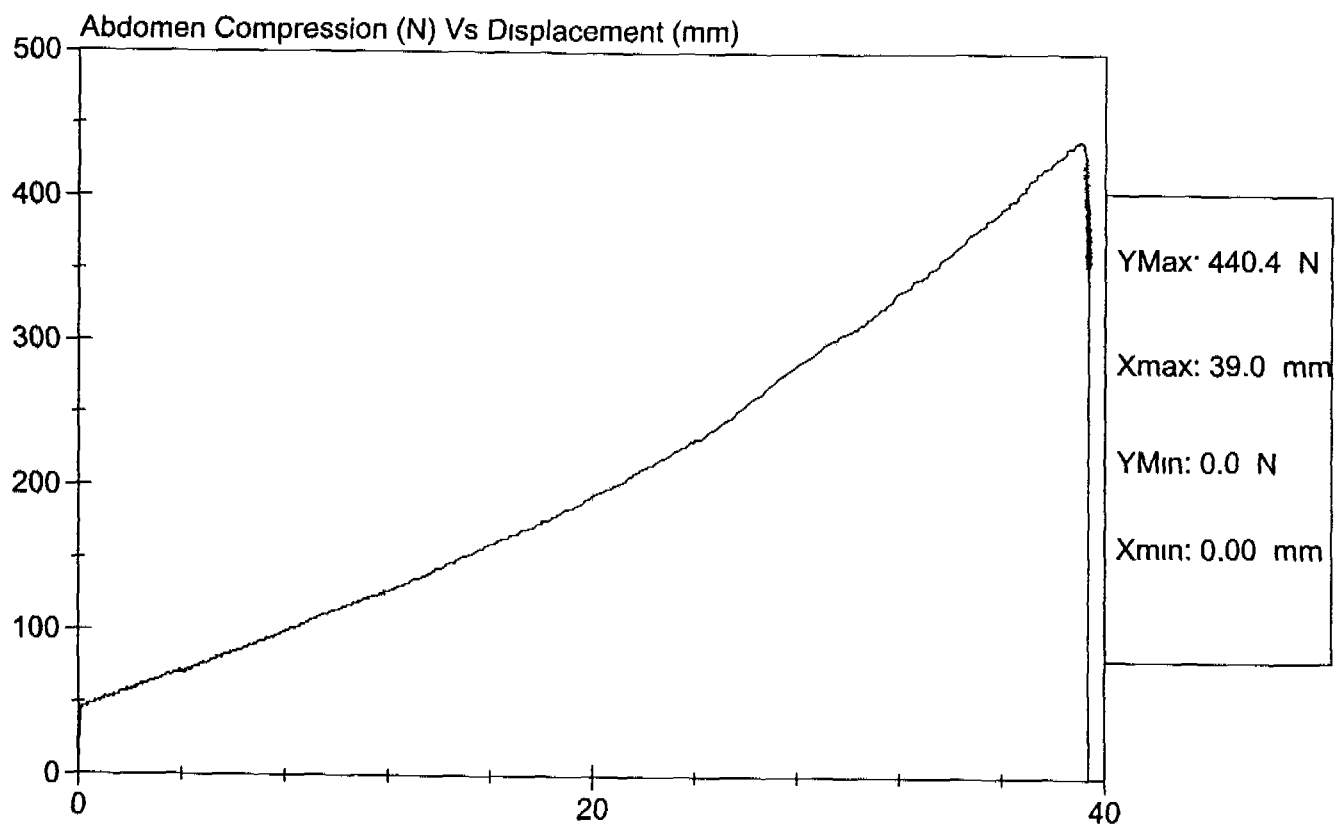
04/12/2002
Test Date



Test Description: Abdomen Compression Test Date: 04/12/2002

Component: D02574

Speed: 0 ft/sec, 0 m/sec



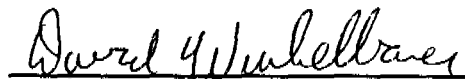
SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 037

Test I.D: D02575

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	22.4	Pass
Laboratory Relative Humidity	%	10 to 70	41	Pass
Force At 0 deg	N	0 - 26 7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	102.0	Pass
Force At 30 deg	N	151.2 - 204.6	158.4	Pass
Force At 40 deg	N	204.6 - 258.0	214.7	Pass
Return Angle	Deg	12 Maximum	3	Pass
Overall Test Results				Pass


Laboratory Technician


Approved By

04/12/2002
Test Date

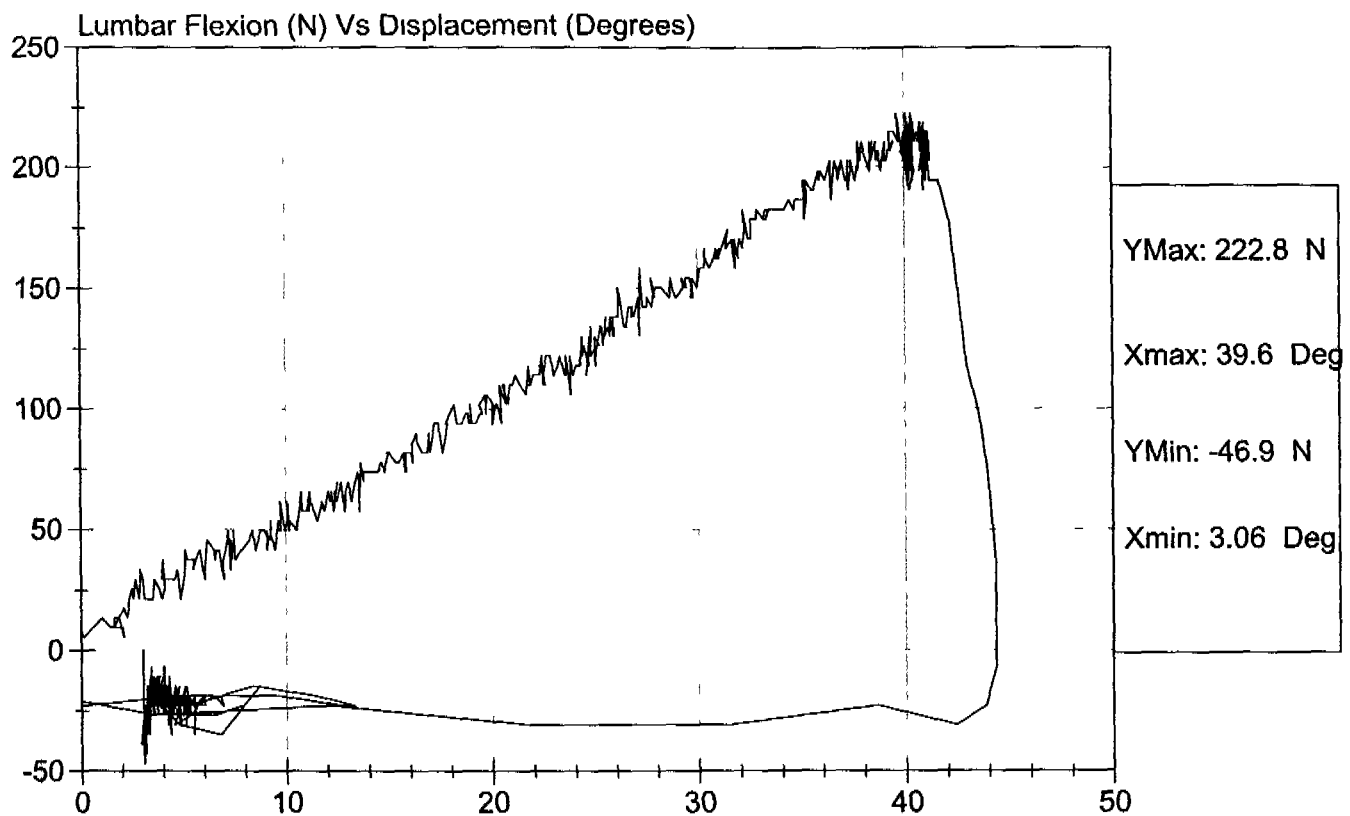


Test Description: Lumbar Flexion

Test Date: 04/12/2002

Component: D02575

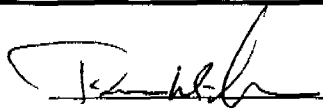
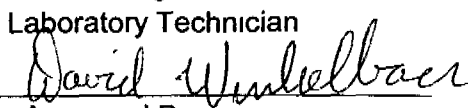
Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Inspection Checklist

ATD Serial No: 037

Test Part	Items Checked	Result
Skin	Visual inspection	Pass
Head	Visual, ballast, accelerometer mount	Pass
Neck	Visual	Pass
Spine Box	Visual, ballast, accelerometer mount	Pass
Rib Cage	Visual, measure	Pass
Sternum	Visual	Pass
Lumbar Spine	Visual	Pass
Abdomen	Visual	Pass
Pelvis	Visual, palpate, accelerometer mount	Pass
Upper Legs	Visual	Pass
Knees	Visual	Pass
Lower Legs	Visual, range of motion	Pass
Ankles	Visual, range of motion	Pass
Feet	Visual, range of motion	Pass
Joints	1 to 2 g range	Pass
Other		

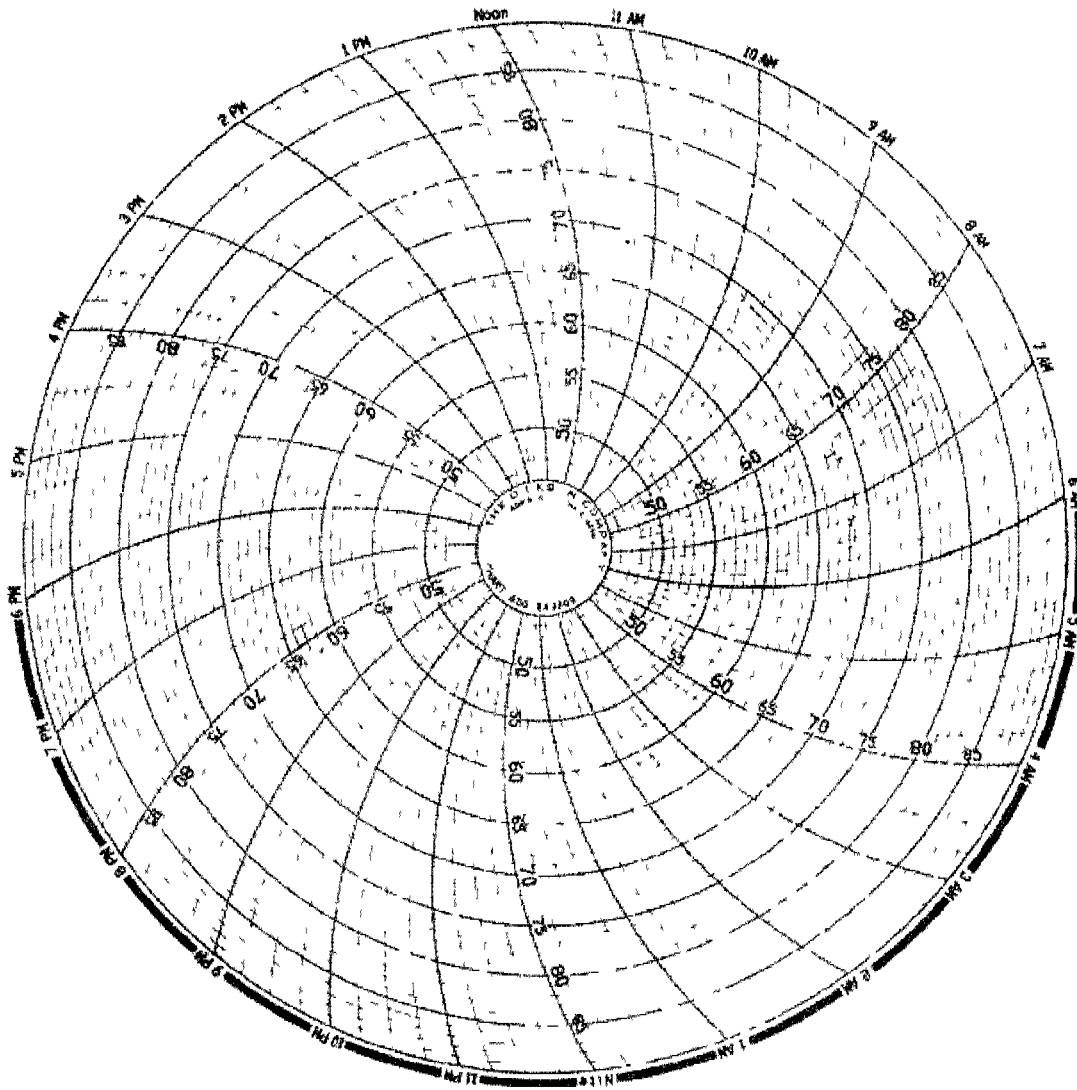

 Laboratory Technician

 Approved By

4/15/02
 Test Date

VEHICLE AND DUMMY TEMPERATURE

Test Vehicle: 2003/Hyundai/Tiburon/2 Door

Test Time: 12:30 p.m.



APPENDIX D

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

DUMMY AND VEHICLE CALIBRATION DATA

	INSTRUMENTS FOR DRIVER DUMMY NO. 36		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AKAC4	Endevco	1/7/02
Lower Rib Y	J10420	Endevco	1/7/02
Lower Spine Y	AP1Y8	Endevco	1/7/02
Pelvis Y	AP138	Endevco	1/7/02
Upper Rib Redundant Y	J13642	Endevco	1/7/02
Lower Rib Redundant Y	AKAF2	Endevco	1/7/02
Lower Spine Redundant Y	AMT78	Endevco	1/7/02
Pelvis Redundant Y	AP0G2	Endevco	1/7/02

	INSTRUMENTS FOR PASSENGER DUMMY NO. 37		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	J13943	Endevco	1/8/02
Lower Rib Y	AJ420	Endevco	1/7/02
Lower Spine Y	ALDY8	Endevco	1/7/02
Pelvis Y	J13851	Endevco	1/7/02
Upper Rib Redundant Y	J13422	Endevco	1/8/02
Lower Rib Redundant Y	AMTA3	Endevco	1/7/02
Lower Spine Redundant Y	AP0E1	Endevco	1/7/02
Pelvis Redundant Y	J13658	Endevco	1/7/02

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Left Mid A-Post Y	K21-N28	Entran	1/17/02
Left Lower A-Post Y	K21-N24	Entran	1/17/02
Left Mid B-Post Y	K21-N02	Entran	12/11/01
Left Lower B-Post Y	I12-f16	Entran	10/29/01
Rear Floorpan Above Axle X	F04-N10	Entran	1/14/02
Rear Floorpan Above Axle Y	G03-N09	Entran	1/14/02
Rear Floorpan Above Axle Z	I25-F12	Entran	1/14/02
Driver Seat Track Y	K11-G07	Entran	3/6/02
Right Side Sill at Front Seat X	K21-N15	Entran	3/1/02
Right Side Sill at Front Seat Y	K21-N18	Entran	1/17/02
Right Side Sill at Front Seat Z	G13-F02	Entran	3/1/02
Right Side Sill at Rear Seat X	E03-H24	Entran	3/1/02
Right Side Sill at Rear Seat Y	G03-N11	Entran	3/1/02
Right Side Sill at Rear Seat Z	F07-A14	Entran	3/1/02
Left Side Sill at Front Seat Y	K21-N19	Entran	1/17/02
Left Side Sill at Rear Seat Y	K21-N20	Entran	1/17/02
Right Rear Occupant Compartment Y	G13-F15	Entran	3/6/02
Vehicle CG X	K21-N10	Entran	12/11/01
Vehicle CG Y	K21-N09	Entran	12/11/01
Vehicle CG Z	K21-N11	Entran	12/11/01

Note. All Endevco accelerometers are Model No 7264-2000
All Entran accelerometers are Model No EGE-72