

REPORT NUMBER: 214D-MGA-2002-007

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

**TOYOTA MOTOR COMPANY
2003 TOYOTA COROLLA 4 DOOR
NHTSA NUMBER: C35100**

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



March 6, 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.

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COTR, Side Impact

Date of Acceptance

Technical Report Documentation Page

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16. Abstract A 55/28 km/h 90° Moving Deformable Barrier INDICANT Compliance Test was conducted on the 2003 Toyota Corolla 4 door in accordance with the specifications of the Office of Vehicle Safety Compliance Laboratory Test Procedure No. TP-214D-06 Side Impact Protection (except the test was conducted 8 km/h (5 mph) faster than the standard specifies) for determination of FMVSS No. 214 Side Impact Protection. The test was conducted at MGA Research Corporation, in Burlington Wisconsin on March 6, 2002. The impact velocity of the Moving Deformable Barrier (MDB) was 62.0 km/h, and the ambient temperature at the struck side (driver's) of the vehicle was 19.4°C. The target vehicle's maximum post test static crush was 338 mm at level 2. The test vehicle's occupant performance is as follows: <table style="margin-left: auto; margin-right: auto; border: none;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>DRIVER</u></th> <th style="text-align: center;"><u>PASS.</u></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) Accel., g</td> <td style="text-align: center;">73</td> <td style="text-align: center;">64</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td style="text-align: center;">68</td> <td style="text-align: center;">72</td> </tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td> <td style="text-align: center;">71</td> <td style="text-align: center;">71</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td style="text-align: center;">72</td> <td style="text-align: center;">72</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td style="text-align: center;">96</td> <td style="text-align: center;">70</td> </tr> <tr> <td>HIC</td> <td style="text-align: center;">680</td> <td style="text-align: center;">988</td> </tr> </tbody> </table> The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.					<u>DRIVER</u>	<u>PASS.</u>	Left Upper Rib (LUR) Accel., g	73	64	Left Lower Rib (LLR) Accel., g	68	72	Lower Spine (T ₁₂) Accel., g	71	71	Thoracic Trauma Index (TTI)	72	72	Pelvis (PEV) Accel., g	96	70	HIC	680	988
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17. Key Words Compliance Testing FMVSS 214D Side Impact Protection Side Impact Dummy (SID) New Car Assessment Program (NCAP)		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																						
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SECTION 1

PURPOSE AND TEST PROCEDURE

1.1 PURPOSE

This side impact test is conducted as part of the FY' 2002 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 Toyota Corolla 4 door manufactured by Toyota.

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 TP-214D-06, dated July 26, 2001 and the corresponding MGA Research Corporation Test Procedure MGA-NHTSA2 with the exception of the test speed, which was at the NCAP High Speed Lateral Impact level (61.2 km/h, approximately 8 km/h faster than compliance speed). 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 model year 2003 Toyota Corolla 4 door 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 62.0 km/h. The specified impact velocity range is from 61.1 to 62.7 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 1367.2 kg and the test weight of the MDB was 1362.0 kg. The test was conducted at MGA Research Corporation in Burlington, Wisconsin, on March 6, 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 (SIDs) 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 July 26, 2001. Each SID was instrumented with fourteen (14) 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)
- Head Center of Gravity (CG) tri-axial accelerometers (X,Y and Z axes 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 338 mm at level 2, 1200 mm rearward of the left vertical impact point. The driver and passenger SID's, Serial Nos. 37 and 36 respectively, were calibrated just prior to this test. The SID's injury criteria is summarized as follows:

Measurements	Units	Driver	Passenger
Thoracic Trauma Index (TTI)	G's	72	72
Peak Pelvic G's (PEV)	G's	96	70
Head Injury Criteria (HIC)	none	680	988

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 NHTSA number was changed from C25106 to C35100 after all photos were taken.

SECTION 3

SIDE IMPACT DUMMY (SID) AND VEHICLE TEST DATA

Test Vehicle: 2003/Toyota/Corolla/4 door
Test Program: 214 Indicant Side Impact

NHTSA No. C35100
Test Date: 3/6/02

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 ^f /in ²	kPa	7.0
Volume	Liquid	gal	liter	3.785
Temperature	General Use	°F	°C	$=(t_f - 32)/1.8$
Force	Dynamic Forces	lb ^f	N	4.448
Moment	Torque	lb ^f /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/Toyota/Corolla/4 door
 Test Program: 214 Indicant Side Impact

NHTSA No. C35100
 Test Date: 3/6/02

TEST VEHICLE INFORMATION

Make	Toyota
Model	Corolla
Body Style	4 Door
NHTSA No.	C25106
VIN	1NXBR32E83Z008316
Color	Red
Delivery Date	February 25, 2002
Odometer Reading (mile)	38
Dealer	Wilde Toyota
Transmission	Automatic
Final Drive	Front
Number of Cylinders	4
Engine Displacement (L)	1.8
Engine Placement	Lateral

TEST VEHICLE OPTIONS

Front Airbag	Yes
Side Airbags	None
Power Windows	No
Power Steering	Yes
Power Door Locks	No
Tilt Wheel	Yes
Air Conditioning	Yes
Power Brakes	Yes
Disc Brakes, Front	Yes
Disc Brakes, Rear	No
Anti-lock Brakes	No
AM/FM/CD	Yes
Anti-theft System	No
Cruise Control	No

DATA FROM CERTIFICATION LABEL

Manufactured By	Toyota
Date of Manufacture	02/02

GVWR (kg)	1626
GAWR Front (kg)	855
GAWR Rear (kg)	780

DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	210	210
Cold Pressure (kPa)	210	210
Recommended Tire Size	P185/65R15	P185/65R15
Tire Size on Vehicle	P185/65R15	P185/65R15
Tire Manufacturer	Goodyear	Goodyear

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Contour	N/A	
Number Of Occupants x 68.04 kg.	2	3	0	340.2
Capacity Wt. (VCW) (kg)				390.1
Cargo Wt. (RCLW) (kg)				49.8

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

Test Vehicle: 2003/Toyota/Corolla/4 door

NHTSA No. C35100

Test Program: 214 Indicant Side Impact

Test Date: 3/6/02

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	364.2	228.2		404.6	310.3	
Right	kg	352.0	219.1		367.0	285.3	
Ratio	%	61.6	38.4		56.4	43.6	
Totals	kg	716.2	447.3	1163.5	771.6	595.6	1367.2

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1163.5
Weight of 2 P572B ATDs	kg	161.5
Rated Cargo/Luggage Weight (RCLW)	kg	49.8
Calculated Vehicle Target Weight (TVTW)	kg	1374.8

- Actual As Tested Weight (ATW) will be TVTW -5/-10 kg

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG(aft of front axle)
As Delivered	mm	684	689	709	702	1000
As Tested	mm	668	675	655	674	1133
Fully Loaded	mm	668	684	655	674	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2600
Total Vehicle Length at Left Side	mm	3624
Total Vehicle Length at Centerline	mm	4488
Total Vehicle Length at Right Side	mm	3621
Total Vehicle Width	mm	1700
Weight of Ballast in Cargo Area	kg	65.8
Amount of Stoddard Solvent in Fuel Tank	liters	46.2

TEST VEHICLE VERTICAL IMPACT LINE DATA

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2600
Target Impact Point Aft of Front Axle	mm	360
Actual Impact Point Aft of Front Axle	mm	378

DATA SHEET NO. 1...(continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2003/Toyota/Corolla/4 door
Test Program: 214 Indicant Side Impact

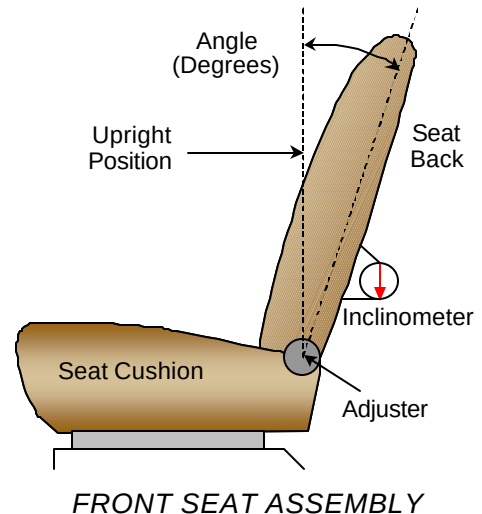
NHTSA No. C35100
Test Date: 3/6/02

NORMAL DESIGN RIDING POSITION

The driver seat is positioned to the manufacturer's designated angle. W/O vertical adjuster – Recline to the fifth notch from the most upright position (first position is 1) move rearward 4 notches. Head rest angle 89.0° passenger is fixed; no adjustments can be made.

Driver seat back angle: 5th notch 88.7°

Passenger seat back angle: Non-adjustable



SEAT FORE/AFT POSITIONS

The driver's seat is manually operated 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: 17 detents

Passenger seat fore/aft total travel: Non adjustable

Driver seat fore/aft position: 9th detent

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 5 positions or detents, 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/Toyota/Corolla/4 door
Test Program: 214 Inducant Side Impact

NHTSA No. C35100
Test Date: 3/6/02

FUEL TANK CAPACITY DATA

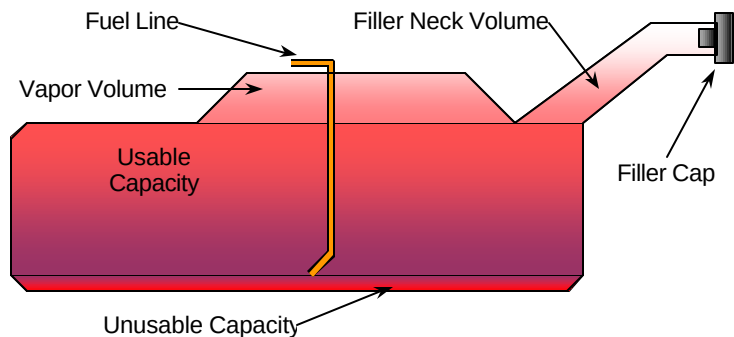
The "Usable Capacity" of the standard equipment fuel tank is: 50.0 liters

The "Usable Capacity" of any optional equipment fuel tank is: N/A liters

92-94% of "Usable Capacity" for certification to FMVSS 301 requirements: 46.0 to 47.0 liters

Actual amount of Stoddard solvent added to vehicle for certification test: 46.2 liters

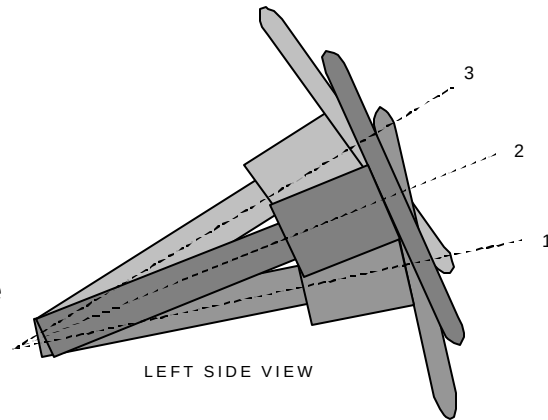
The test vehicle is equipped with an electric fuel pump. The fuel filler door is located on the left rear fender.



VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes, when it is moved through its full range of motion. An aluminum plate is placed across the rim of the steering wheel, and inclinometer is placed onto the plate and the angle is measured.



STEERING COLUMN ASSEMBLY

Lowermost, position 1: 24.1°

Geometric center, position 2: 26.1°

Uppermost, position 3: 28.1°

DATA SHEET NO. 2**TEST VEHICLE SUMMARY OF RESULTS**

Test Vehicle: 2003/Toyota/Corolla/4 door
 Test Program: 214 Indicant Side Impact

NHTSA No. C35100
 Test Date: 3/6/02

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	364.2	228.2		404.6	310.3	
Right	kg	352.0	219.1		367	285.3	
Weight Ratio	%	61.6	38.4		56.4	43.6	
Totals	kg	716.2	447.3	1163.5	771.6	595.6	1367.2

MAXIMUM EXTERIOR STATIC CRUSH

Level	Measured Parameter	Units	Maximum Crush	Above Ground
Level 1	Sill Top Height	mm	159	258
Level 2	Occupant H-Point	mm	338	545
Level 3	Mid Door	mm	300	604
Level 4	Window Sill	mm	229	915
Level 5	Window Top	mm	39	1369
N/A	Maximum Penetration	mm	338	545

INSTRUMENTATION

Driver SID Accelerometers	14
Passenger SID Accelerometers	14
Vehicle Structure Accelerometers	20
MDB Accelerometers	5
Total	53

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

Test Vehicle: 2003/Toyota/Corolla/4 door
 Test Program: 214 Indicant Side Impact

NHTSA No. C35100
 Test Date: 3/6/02

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	61.1 to 62.7	62.0
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	NVD
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	89.7

MAXIMUM STATIC CRUSH OF HONEYCOMB FACE

Vertical Location			From Centerline		Max. Crush
Level	Description	Height	Distance	Direction	
1	Center of Bumper (mm)	432	800	Right	102
2	Top of Bumper (mm)	533	800	Right	56
3	Mid Level (mm)	686	800	Right	68
4	Top of Stack (mm)	813	800	Left	109

MDB INSTRUMENTATION AND CAMERAS

Accelerometers	5
Contact Switches	2
High Speed Cameras	2

DATA SHEET NO. 4**POST TEST OBSERVATIONS**

Test Vehicle: 2003/Toyota/Corolla/4 door
 Test Program: 214 Indicant Side Impact

NHTSA No. C35100
 Test Date: 3/6/02

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat SID	Rear Seat SID
Dummy Type / Serial No.	SID / 37	SID / 36
Head Contact	window sill, left shoulder	c-post
Upper Torso Contact	upper rear door	upper rear door
Lower Torso Contact	armrest	armrest
Left Knee Contact	mid door below armrest	mid door below armrest
Right Knee Contact	left knee	left knee

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Left Side Door Opening	remained closed	remained closed
Right Side Door Opening	remained closed	remained closed
Seat Movement	none	none
Seat Back Failure	none	none

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	no failure
Sill Separation	none
Windshield Damage	none
Window Damage	left front and left rear side
Other Notable Effects	gas fill door open

AIRBAG DEPLOYMENT

	Driver	Front Passenger	Rear Passenger
Front	no	no	none
Side	none	none	none

MDB LEFT EDGE IMPACT POINT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	18 rearward
Vertical Offset	mm	+/-20	4 up

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 5

SID INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2003/Toyota/Corolla/4 door
 Test Program: 214 Indicant Side Impact

NHTSA No. C35100
 Test Date: 3/6/02

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	73.3	31	18.0	70	64.2	33	4.9	120
Upper Rib (LUR) (R)	Y	G's	70.5	31	17.9	70	63.6	33	5.3	120
Lower Rib (LLR)	Y	G's	68.4	31	20.2	67	72.2	31	19.5	65
Lower Rib (LLR) (R)	Y	G's	67.0	32	20.5	66	73.4	31	19.7	65
Lower Spine (T ₁₂)	Y	G's	70.7	31	21.3	61	70.8	39	18.6	70
Lower Spine (T ₁₂) (R)	Y	G's	69.3	31	28.4	61	70.9	39	18.9	70
Pelvis (PEV)	Y	G's	96.2	25	18.6	49	70.1	28	7.4	65
Pelvis (PEV) (R)	Y	G's	95.4	25	17.9	49	69.2	28	7.1	64

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	73.3	70.7	72	96.2	72.2	70.8	72	70.1
Rib, Spine, and Pelvis (R)	70.5	69.3	70	95.4	73.4	70.9	72	69.2

HEAD CG PEAK ACCELERATIONS (SAE CLASS 1000 Filtered)

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	5.6	62	46.3	81	2.3	102	18.6	44
Head CG	Y	G's	59.6	81	15.6	62	118.9	48	13.1	36
Head CG	Z	G's	68.0	58	9.6	71	31.0	42	53.4	53
Head CG Resultant		G's	77.9	81			121.2	48		

HEAD INJURY CRITERIA (SAE CLASS 1000 Filtered)

Location	Driver				Passenger			
	HIC	T ¹	T ²	Avg G's	HIC	T ¹	T ²	Avg G's
Head CG	680	49.4	85.4	51.3	988	43.6	54.8	95.1

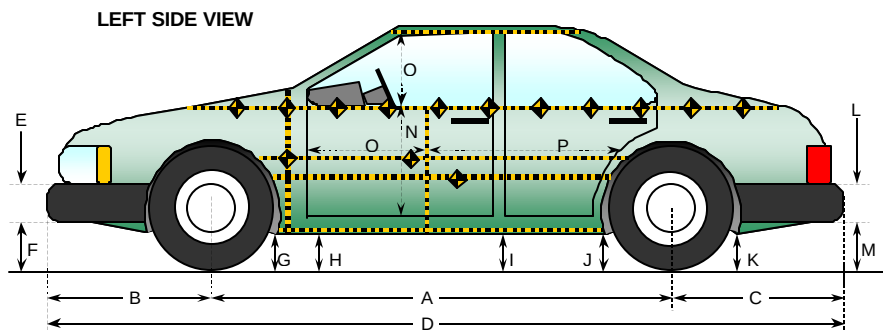
Positive Acceleration Polarities: Longitudinal (X) = Forward
 (Conforms to SAE J211) Lateral (Y) = Right
 Vertical (Z) = Down

DATA SHEET NO. 6

VEHICLE PRE-TEST AND POST-TEST MEASUREMENTS

Test Vehicle: 2003/Toyota/Corolla/4 door
 Test Program: 214 Inducant Side Impact

NHTSA No. C35100
 Test Date: 3/6/02



All Measurements in mm

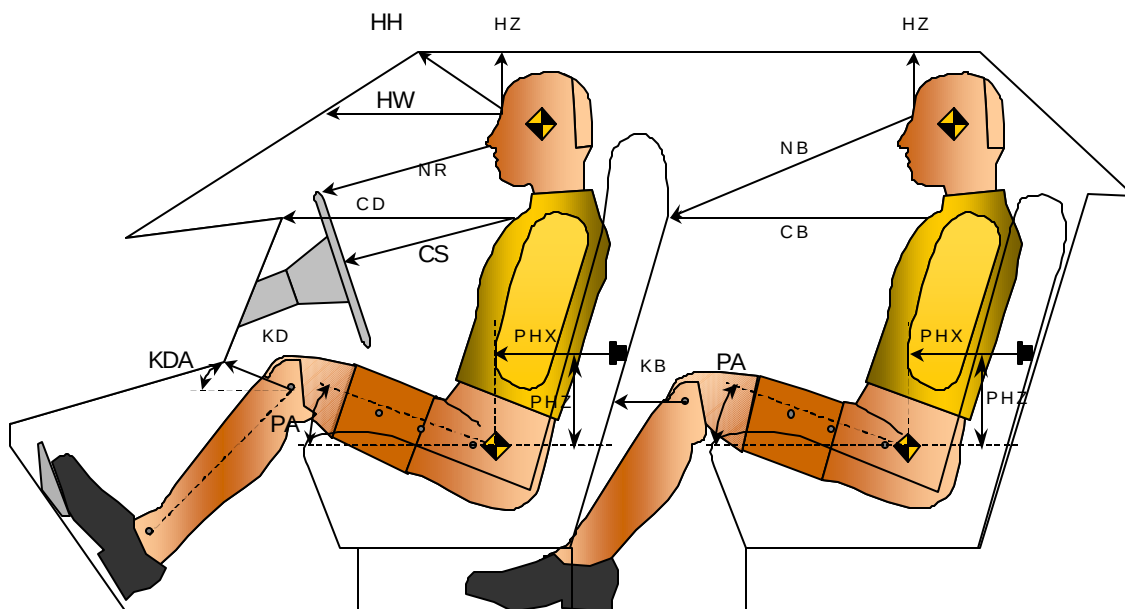
Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2600	2603	-3
B	Front Axle to FSOV	930	964	-34
C	Rear Axle to RSOV	958	927	31
D	Total Length at Centerline	4488	4517	-29
E	Front Bumper Thickness	130	130	0
F	Front Bumper Bottom to Ground	425	395	30
G	Sill Height at Front Wheel Well	165	184	-19
H	Sill Height at Front Door Leading Edge	163	194	-31
I	Sill Height at "B" Pillar	165	230	-65
J1	Sill Height at Rear Wheel Well	166	264	-98
J2	Pinch Weld Height at Rear Wheel Well	164	265	-101
K	Sill Height Aft of Rear Wheel Well	214	232	-18
L	Rear Bumper Thickness	165	165	0
M	Rear Bumper Bottom to Ground	394	409	-15
N	Sill Height to Window Bottom Sill	712	581	131
O	Front Door Leading Edge to Impact CL	779	657	122
P	Rear Door Trailing Edge to Impact CL	1130	1110	20
Q	Front Window Opening	413	390	23
R	Right Side Length	3624	3634	-10
S	Left Side Length	3621	3584	37
T	Vehicle Width at "B" Post	1700	1557	143

DATA SHEET NO. 7

SID LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2003/Toyota/Corolla/4 door
 Test Program: 214 Indicant Side Impact

NHTSA No. C35100
 Test Date: 3/6/02

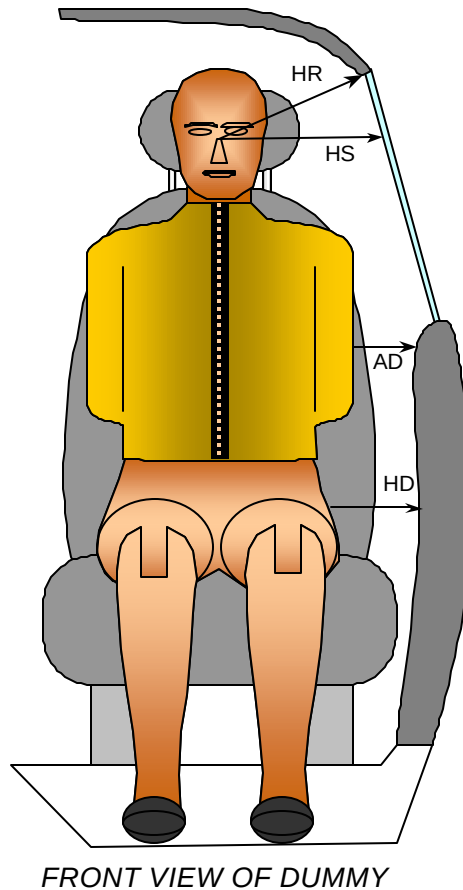


Driver Code	Pass. Code	Measurement Description	Driver 37		Passenger 36	
			Length(mm)	Angle(°)	Length(mm)	Angle(°)
HH		Head to Header	303			
HW		Head to Windshield	529			
HZ	HZ	Head to Roof	151		129	
NR	NB	Nose to Rim/Nose to Seatback	429		635	
CD	CB	Chest to Dash or Seatback	504		570	
CS		Chest to Steering Wheel	628			
KDL	KBL	Left Knee to Dash or Seatback	159	0	225	0
KDR	KBR	Right Knee to Dash or Seatback	147	0	248	0
PA	PA	Pelvic Angle		23.9		24.5
PHX	PHX	H-Point to Striker (X-Axis)	214		272	
PHZ	PHZ	H-Point to Striker (Z-Axis)	209		302	

DATA SHEET NO. 8
SID LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2003/Toyota/Corolla/4 door
 Test Program: 214 Indicant Side Impact

NHTSA No. C35100
 Test Date: 3/6/02



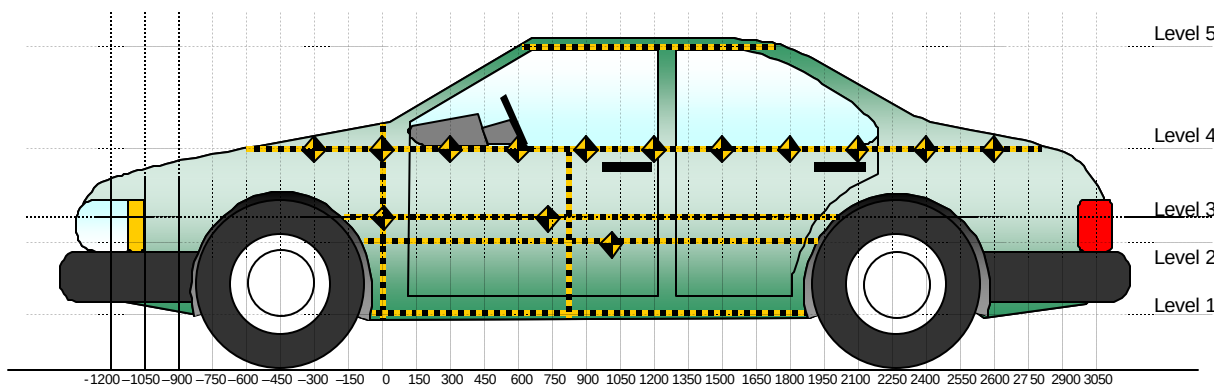
FRONT VIEW OF DUMMY

Code	Measurement Description	Units	Driver 37	Passenger 36
HR	Head to Side Header	mm	177	190
HS	Head to Side Window	mm	281	323
AD	Arm to Door	mm	90	78
HD	H-Point to Door	mm	161	130

DATA SHEET NO. 9 **VEHICLE SIDE MEASUREMENTS**

Test Vehicle: 2003/Toyota/Corolla/4 door
 Test Program: 214 Inducant Side Impact

NHTSA No. C35100
 Test Date: 3/6/02



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	1369
4	Window Sill	915
3	Mid Door	604
2	Occupant H-Point	545
1	Sill Top	258

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2003/Toyota/Corolla/4 door
 Test Program: 214 Indicant Side Impact

NHTSA No. C35100
 Test Date: 3/6/02

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1050															
-900															
-750				373					373					0	
-600				354					350					-4	
-450				345					337					-8	
-300				330					329					-1	
-150				322					330					8	
0		260	259	319			325	316	340			65	57	21	
150	300	263	260	318		380	530	512	377		80	267	252	59	
300	301	263	261	318		414	588	558	347		113	325	297	29	
450	303	262	260	317		429	580	552	512		126	318	292	195	
600	303	262	258	315		441	578	551	528		138	316	293	213	
750	301	261	258	317	540	453	558	521	529	554	152	297	263	212	14
900	303	260	256	317	532	462	543	498	535	550	159	283	242	218	18
1050	303	260	256	317	526	455	517	517	540	553	152	257	261	223	27
1200	303	260	258	319	524	452	598	558	548	554	149	338	300	229	30
1350	305	261	259	320	525	443	579	540	540	559	138	318	281	220	34
1500	305	263	260	321	520	435	558	524	536	559	130	295	264	215	39
1650	305	264	261	325	524	422	539	520	495	556	117	275	259	170	32
1800	304	264	262	326	522	403	537	515	437	538	99	273	253	111	16
1950		258	260	331			467	442	400			209	182	69	
2100			257	334				385	389				128	55	
2250				339					356					17	
2400				345					343					-2	
2550				360					339					-21	
2700				374					349					-25	
2850				391					365					-26	
3000				415					388					-27	
3150															
3300															

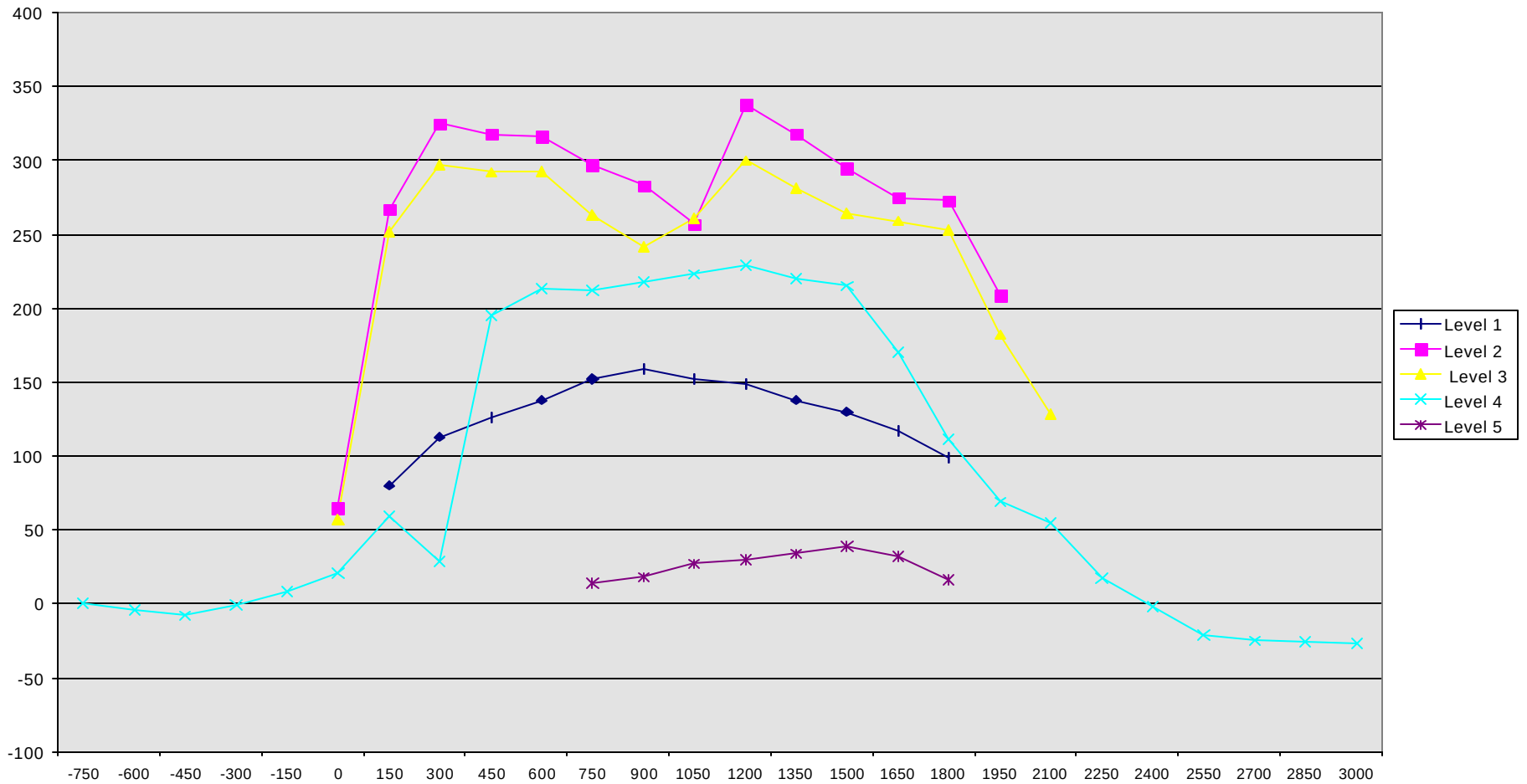
Reference plane is parallel to test vehicle longitudinal centerline.

Given dimensions = Reference plane to car body

DATA SHEET NO. 10...(continued)
VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2003/Toyota/Corolla/4 door
Test Program: 214 Inducant Side Impact

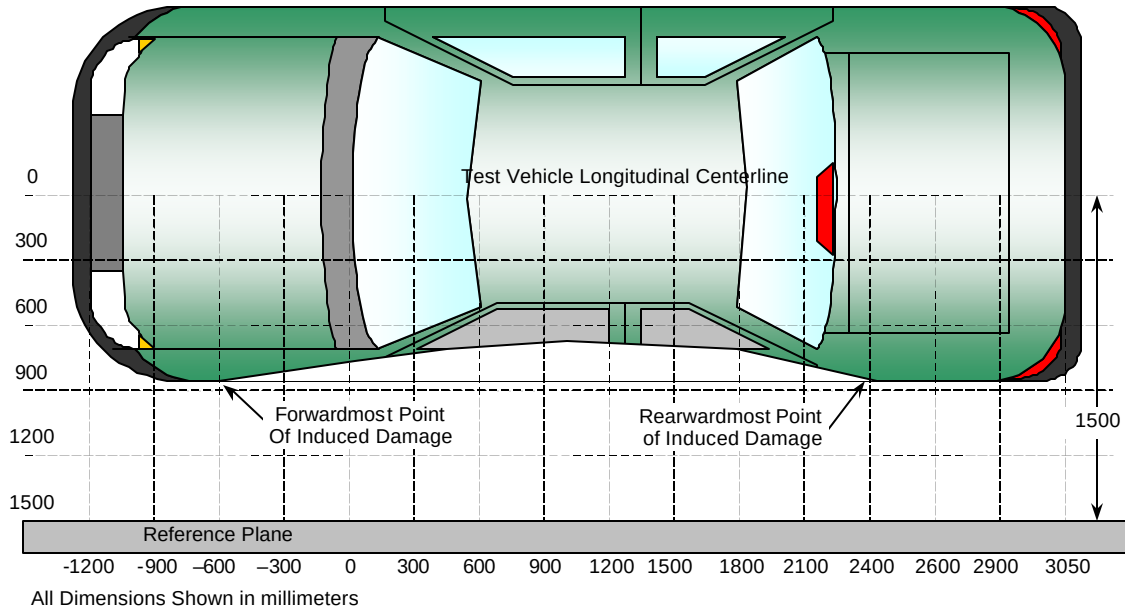
NHTSA No. C35100
Test Date: 3/6/02



DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2003/Toyota/Corolla/4 door
 Test Program: 214 Indicant Side Impact

NHTSA No. C35100
 Test Date: 3/6/02



TOP VIEW

Damage Profile Distances

DPD	Distance from Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max Static Crush (mm)
1	2400 mm	4	345	343	-2
2	1755 mm	2	264	540	276
3	1120 mm	2	260	601	341
4	492 mm	2	263	485	222
5	-120 mm	4	321	333	12
6	-750 mm	4	373	373	0

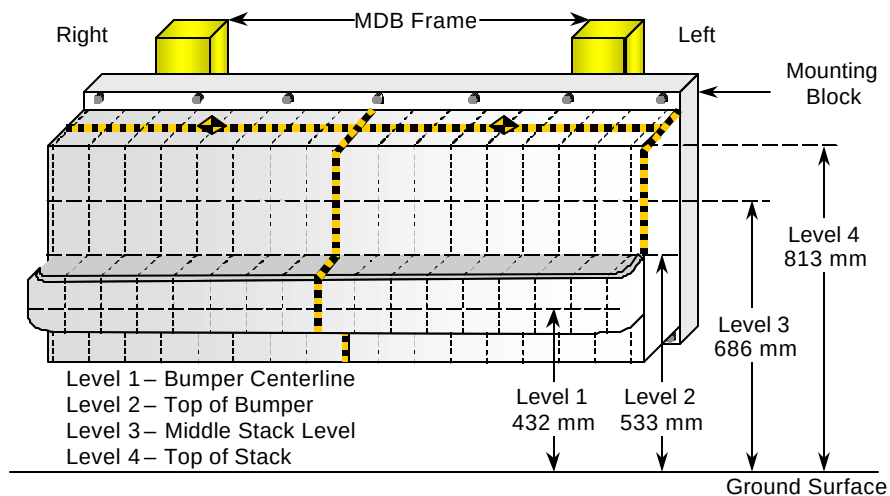
Reference plane is parallel to test vehicle longitudinal centerline.
 Given dimensions = Reference plane to car body.

DATA SHEET NO. 12

DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2003/Toyota/Corolla/4 door
 Test Program: 214 Indicant Side Impact

NHTSA No. C35100
 Test Date: 3/6/02



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	102	92	84	79	75	74	70	68	63	61	59	57	53	51	51	53	60
2	56	46	43	41	37	36	34	32	31	29	27	26	23	22	21	21	23
3	68	44	26	14	7	6	8	18	14	4	0	2	4	2	6	8	42
4	100	54	19	7	3	5	13	22	44	33	13	7	6	7	22	58	109

All Dimensions in mm

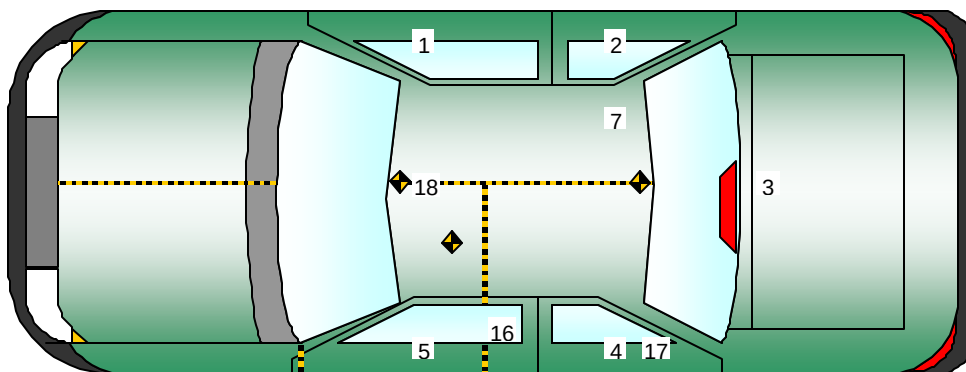
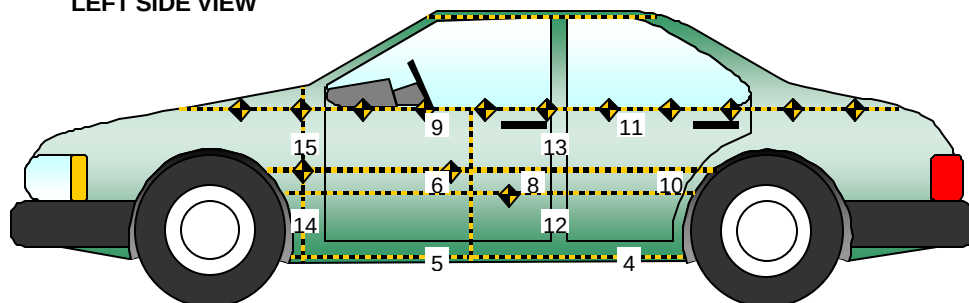
DATA SHEET NO. 13

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Test Vehicle: 2003/Toyota/Corolla/4 door
 Test Program: 214 Indicant Side Impact

NHTSA No. C35100
 Test Date: 3/6/02

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/Toyota/Corolla/4 door
 Test Program: 214 Indicant Side Impact

NHTSA No. C35100
 Test Date: 3/6/02

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	2575	673	-205	X	3.6	61	9.0	10
					Y	25.5	20	2.5	89
					Z	5.7	76	4.7	15
					RES	25.9	20		
2	Right Sill at Rear Seat	1498	690	-248	X	4.2	61	7.5	10
					Y	32.0	7	4.0	89
					Z	11.8	35	5.1	45
					RES	32.0	7		
3	Rear Floorpan Above Axle	951	0	-486	X	3.1	59	9.0	9
					Y	33.5	7	1.9	88
					Z	11.3	9	9.7	59
					RES	35.3	8		
4	Left Sill at Rear Door	1528	-690	-215	Y	50.8	19	6.9	14
5	Left Sill at Front Door	2581	-673	-196	Y	33.8	18	10.3	25
7	Rear Occupant Compartment	1848	328	-334	Y	31.0	19	2.2	90
12	B-Post Lower	2043	-641	-279	Y	71.8	9	40.2	14
13	B-Post Middle	2053	-689	-894	Y	142.1	5	25.6	52
14	A-Post Lower	3080	-642	-304	Y	94.0	10	62.0	17
15	A-Post Middle	3124	-732	-994	Y	27.9	12	4.6	30
16	Front Seat Track	2245	-548	-296	Y	76.0	12	31.0	68
18	Vehicle CG	2620	0	-310	X	2.5	64	12.4	9
					Y	29.8	19	1.5	85
					Z	10.2	24	7.2	13
					RES	29.9	19		

Reference Points X - Test Vehicle Rear Bumper (+ forward)
 Y - Test Vehicle Centerline (+ to right)
 Z - Ground Plane (+ down)

DATA SHEET NO. 14

MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

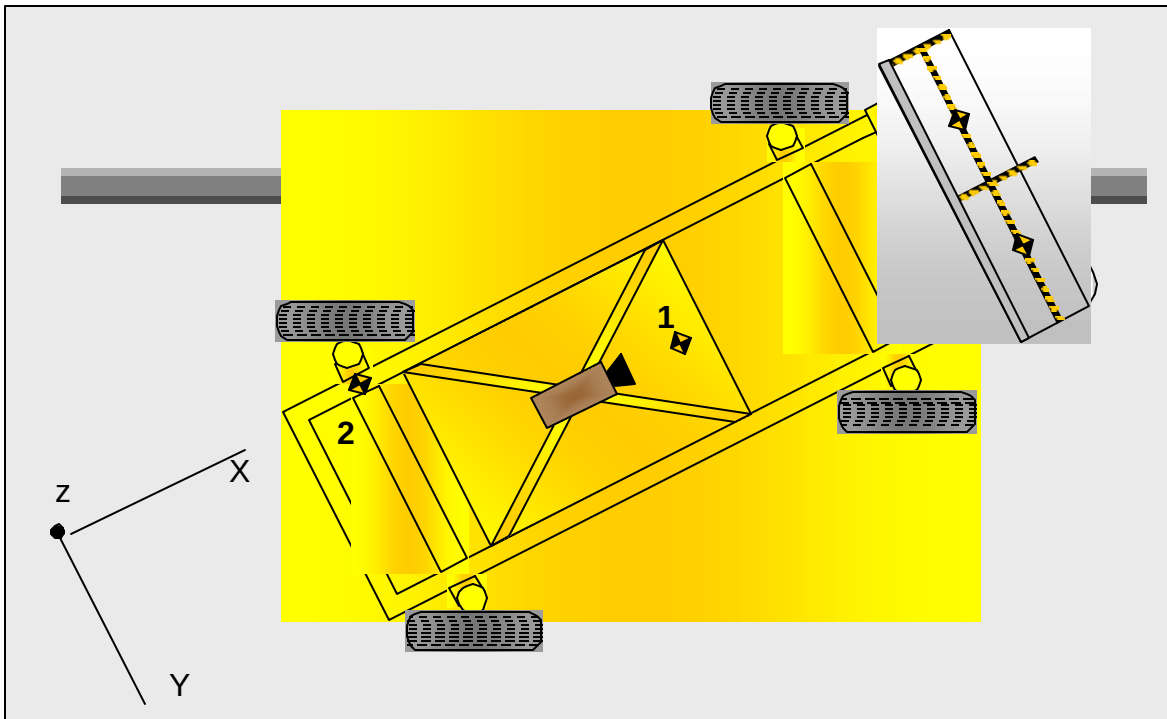
Test Vehicle: 2003/Toyota/Corolla/4 door
 Test Program: 214 Indicant Side Impact

NHTSA No. C35100
 Test Date: 3/6/02

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	119	14.4	36
					Y	2.4	63	6.7	46
					Z	13.7	56	13.8	19
					RES	18.8	40		
2	MDB Rear	-2591	-625	-622	X	1.9	99	20.0	33
					Y	4.0	50	1.0	109

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

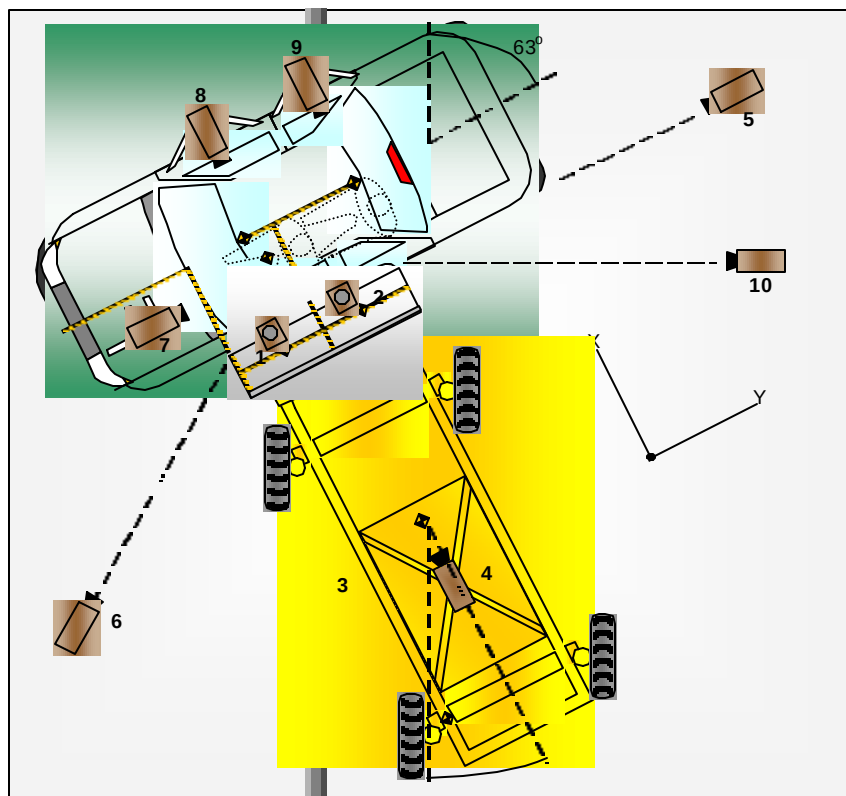


DATA SHEET NO. 15

HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2003/Toyota/Corolla/4 door
 Test Program: 214 Indicant Side Impact

NHTSA No. C35100
 Test Date: 3/6/02



No.	Camera View	Location (mm)			Lens (mm)	Film Speed (fps)
		X	Y	Z		
1	Overhead Overall	1010	70	4990	8	1070
2	Overhead Close-up	-810	705	4950	25	1020
3	MDB Onboard, Impact Point Close-up				35	1015
4	MDB Onboard, Centerline of Impact				13	1010
5	Right Side, Ground Level, Overall	4877	-9069	1850	25	862
6	Left Side, Ground Level, Overall	-1390	1890	1382	13	1005
7	Vehicle Onboard Front SID, Front				13	512
8	Vehicle Onboard Front SID, Side				13	500
9	Vehicle Onboard Rear SID, Side				13	501
10	Real Time Coverage					

Reference Points X - Impact Line
 Y - MDB Left Edge Impact Point
 Z - Ground Plane

DATA SHEET NO. 16

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Test Vehicle: 2003/Toyota/Corolla/4 door
Test Program: 214 Indicant Side Impact

NHTSA No. C35100
Test Date: 3/6/02

Test Time: 11:43 am

Temperature at Time of Impact: 19.4°C

Stoddard Solvent Spillage Measurements

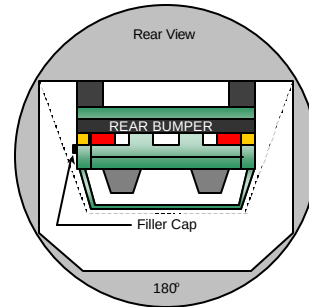
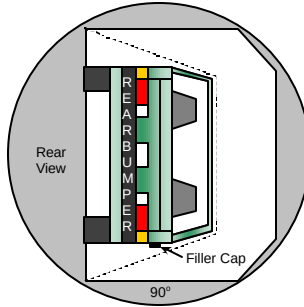
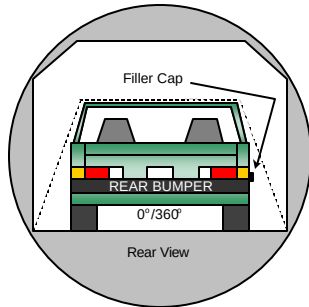
- A. From impact until vehicle motion ceases: 0 oz.
(Maximum Allowable = 1 ounce)
- B. For the 5 minute period after motion ceases: 0 oz.
(Maximum allowable = 5 ounces)
- C. For the following 25 minutes: 0 oz.
(Maximum allowable = 1 oz./minute)
- D. Spillage Details: None

DATA SHEET NO. 17

FMVSS 301 STATIC ROLLOVER DATA SHEET

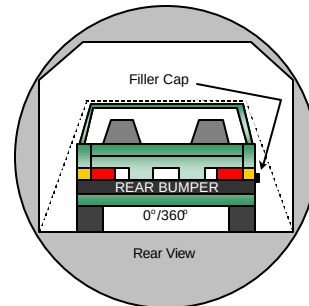
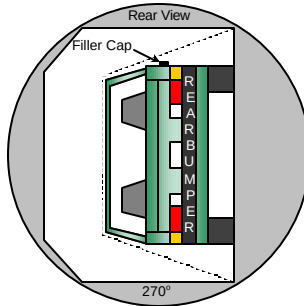
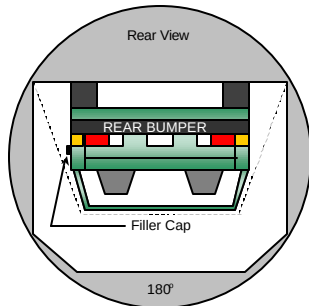
Test Vehicle: 2003/Toyota/Corolla/4 door
 Test Program: 214 Indicant Side Impact

NHTSA No. C35100
 Test Date: 3/6/02



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°	170	300	0
90° to 180°	151	300	0
180° to 270°	144	300	0
270° to 360°	157	300	0

APPENDIX A
PHOTOGRAPHS

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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 Front 3/4 View of Test Vehicle



Post-Test Left Front 3/4 View of Test Vehicle



Pre-Test Left Rear 3/4 View of Test Vehicle



Post-Test Left Rear 3/4 View of Test Vehicle



Pre-Test Right Front 3/4 View of Test Vehicle



Post-Test Right Front 3/4 View of Test Vehicle



Pre-Test Right Rear 3/4 View of Test Vehicle



Post-Test Right Rear 3/4 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



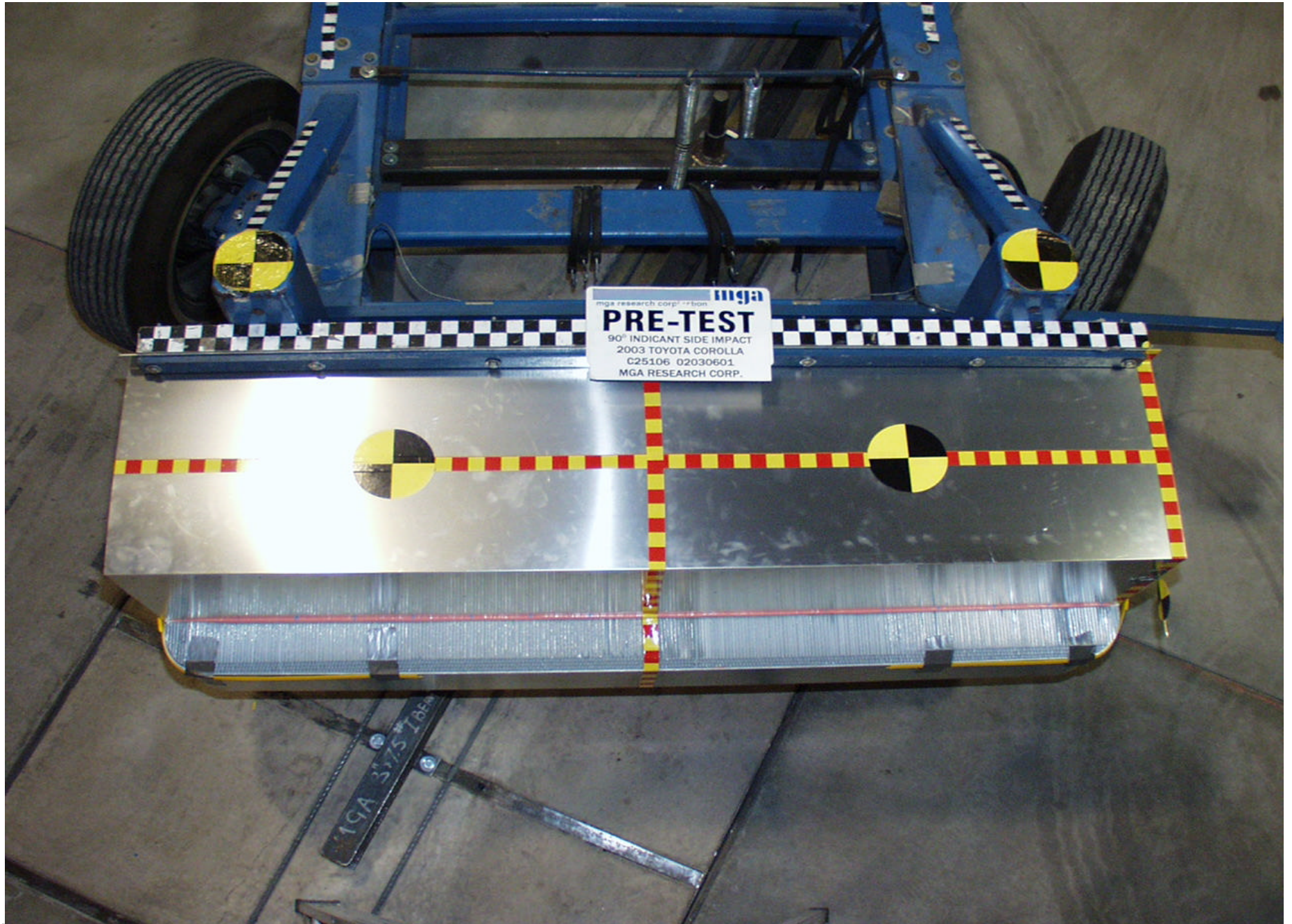
Post-Test MDB and Vehicle (left side)



Post-Test MDB and Vehicle (right side)



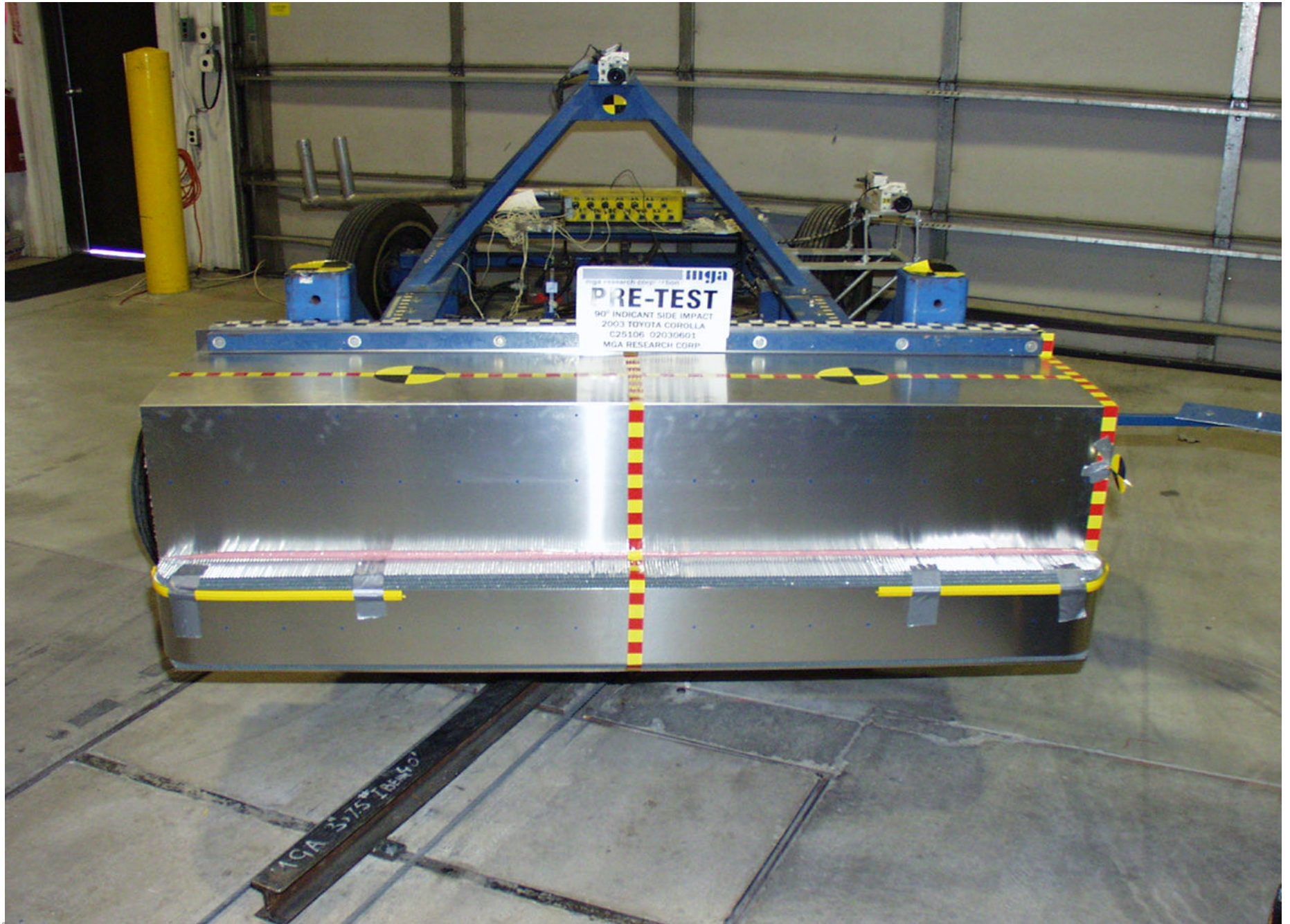
Post-Test MDB and Vehicle Overhead View



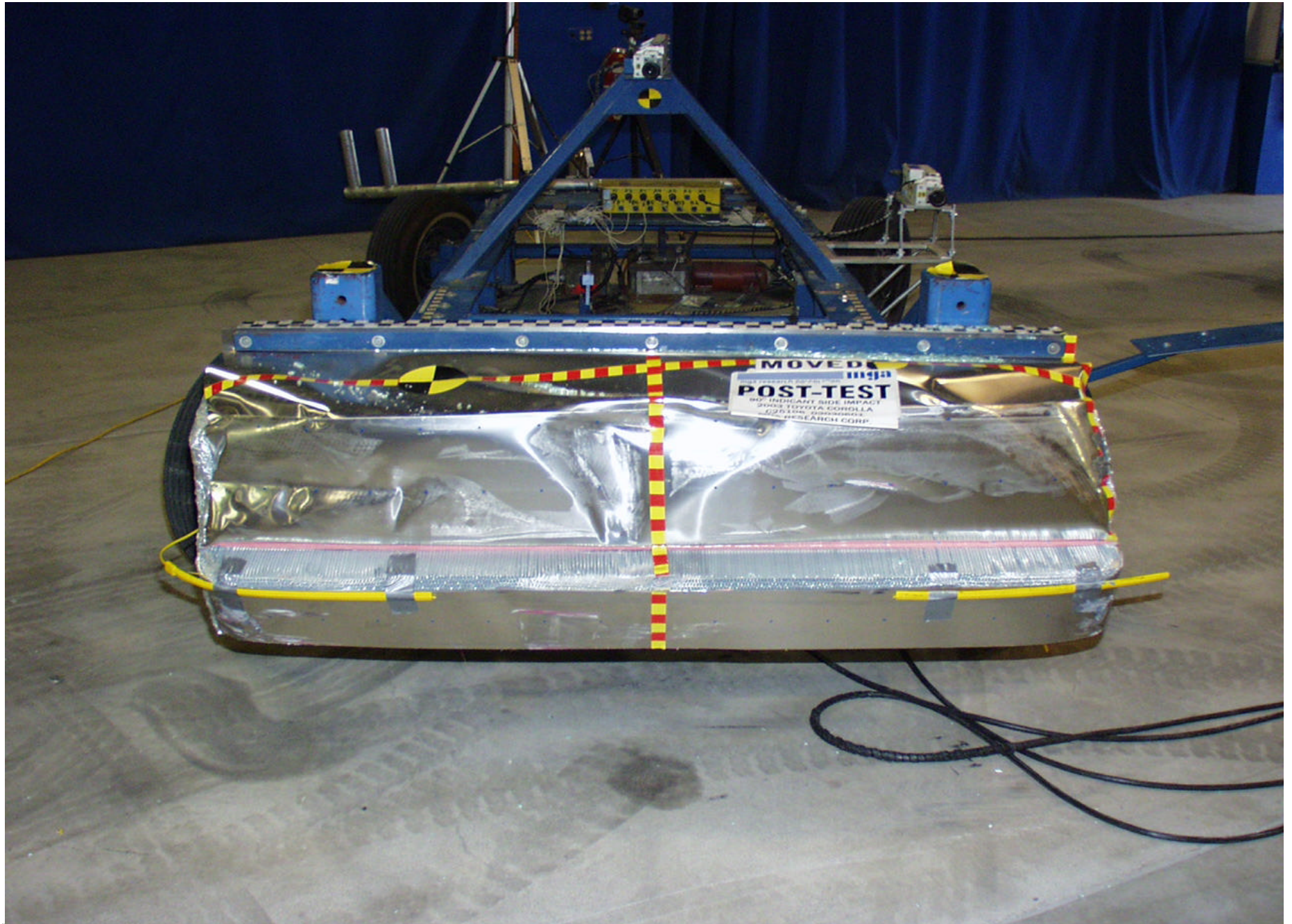
Pre-Test MDB Top View



Post-Test MDB Top View



Pre-Test MDB Front View



Post-Test MDB Front View



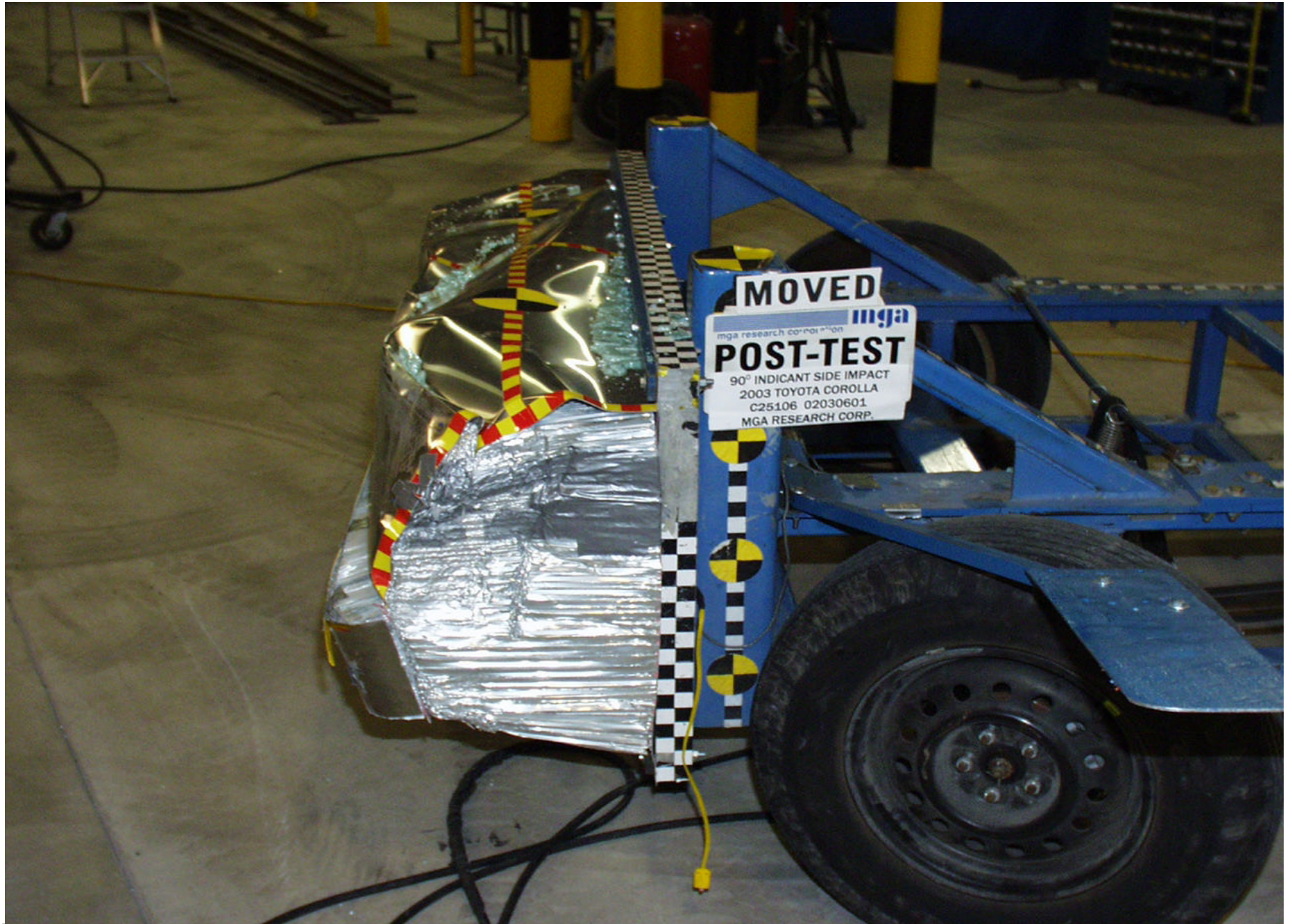
Pre-Test MDB Right Side View



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



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 Left Side View (Door Open)



Pre-Test Passenger Dummy Shoulder and Door Top View



Post-Test Passenger Dummy Shoulder and Door Top View



Post-Test Passenger Dummy Contact



Post-Test Passenger Dummy Head Contact



Pre-Test Impact Point on Vehicle



Post-Test Impact Point on Vehicle



Pre-Test Fuel Filler Cap View



Post-Test Fuel Filler Cap View



Impact

CLMB 328216
INC 05\05
HED BA: MEM UNITED MOTOR MANUFACTURING

MFD.BY: NEW UNITED MOTOR MANUFACTURING
INC. 02/02

GVWR 3585LB GAWR FR 1885LB RR 1720LB
THIS VEHICLE CONFORMS TO ALL APPLICABLE
FEDERAL MOTOR VEHICLE SAFETY, BUMPER, AND
THEFT PREVENTION STANDARDS IN EFFECT ON
THE DATE OF MANUFACTURE SHOWN ABOVE.

1NXBR32E83Z008316 PASS CAR



C/TR: 3P1/FB11 MODEL: ZZE130L-DEPDKA
A/TM: -02A/A245E

BA2934796

A-51.

Vehicle Certification Label

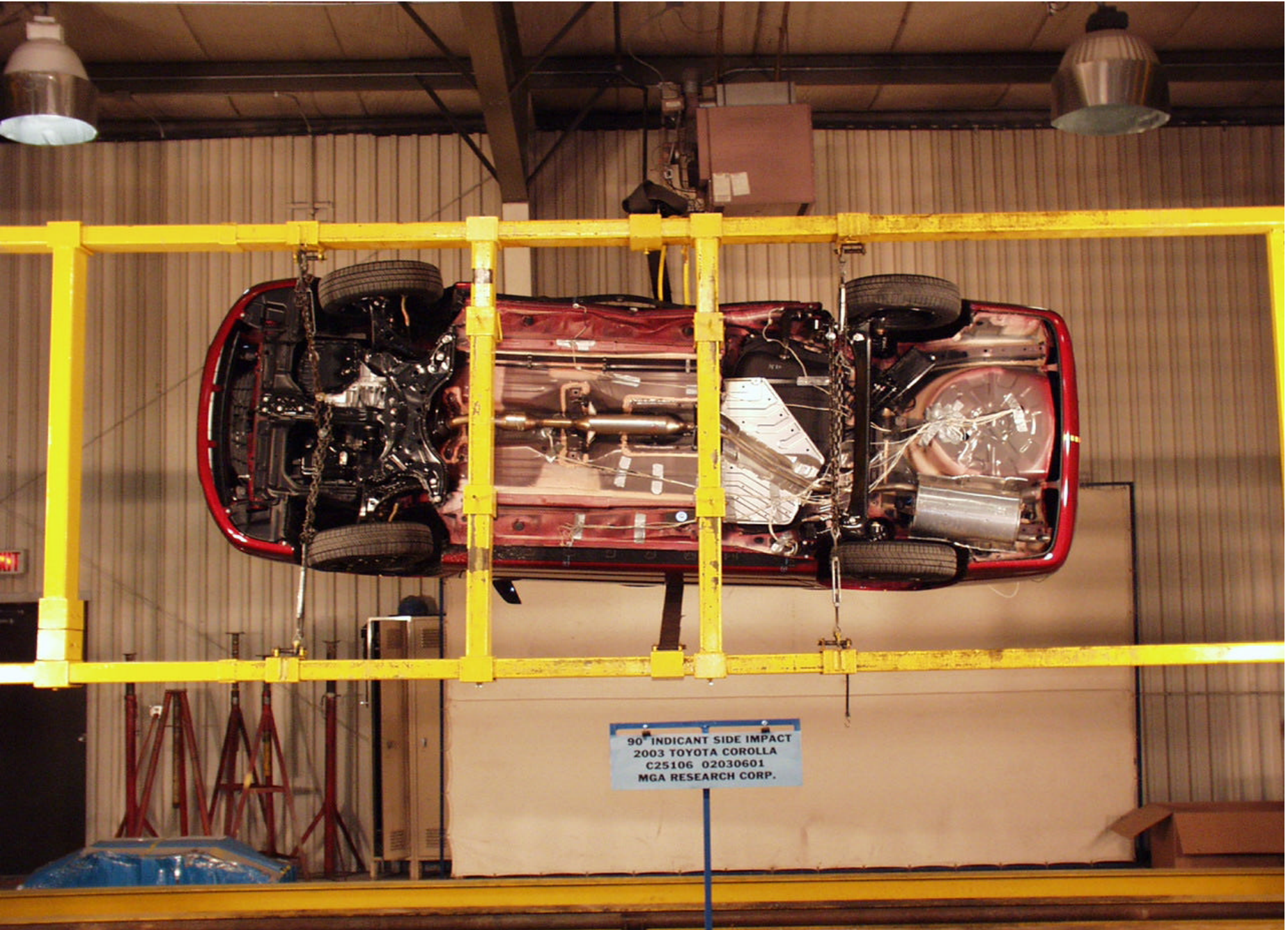
VEHICLE CAPACITY WEIGHT: 8601bs (390kg)
 DESIGNATED SEATING CAPACITY: TOTAL 5 (FRONT 2, REAR 3)
 RECOMMENDED COLD TIRE INFLATION PRESSURE: psi (kPa)
 UP TO VEHICLE CAPACITY WEIGHT FRONT 30 (210), REAR 30 (210)
 RECOMMENDED TIRE SIZE: P185/65R15 86S, P195/65R15 89S
 COMPACT SPARE TIRE
 RECOMMENDED COLD TIRE INFLATION PRESSURE: 60psi (420kPa)
 RECOMMENDED TIRE SIZE: T125/70R16 96M
 SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION

CHARGE MAXIMALE DU VEHICULE: 860LIVRES (390kg)
 NOMBRE DESIGNÉ DE PLACES ASSISES: TOTAL 5
 (AVANT 2, ARRIERE 3)
 PRESSION RECOMMANDEE DE GONFLAGE A FROID DES PNEUS
 AU POIDS MAXIMAL DU VEHICULE CHARGE: LB/PO² (kPa)
 AVANT 30 (210), ARRIERE 30 (210)
 DIMENSION RECOMMANDEE DES PNEUS: P185/65R15 86S, P195/65R15 89S
 PNEU DE RECHANGE COMPACT
 DIMENSION RECOMMANDEE DU PNEU: T125/70R16 96M
 PRESSION RECOMMANDEE DE GONFLAGE A FROID: 60LB/PO² (420kPa)
 POUR DE PLUS AMPLES DETAILS, VOIR LE MANUEL DU PROPRIETAIRE

02200 **BO**







90° INDICANT SIDE IMPACT
2003 TOYOTA COROLLA
C25106 02030601
MGA RESEARCH CORP.





PRE-TEST
90° INDICANT SIDE IMPACT
2003 TOYOTA COROLLA
C25106 02030601
MGA RESEARCH CORP.





APPENDIX B

SID, VEHICLE, AND MDB RESPONSE DATA

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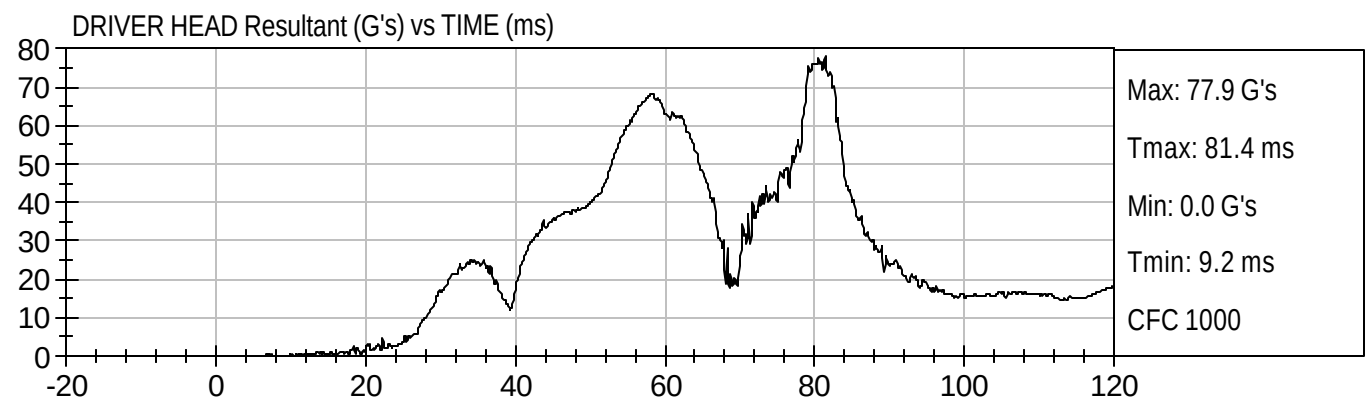
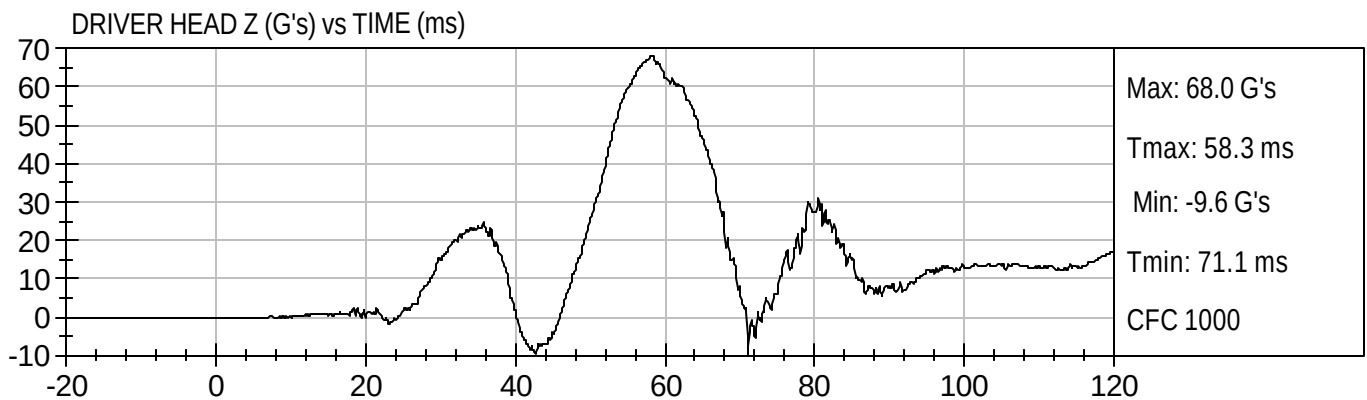
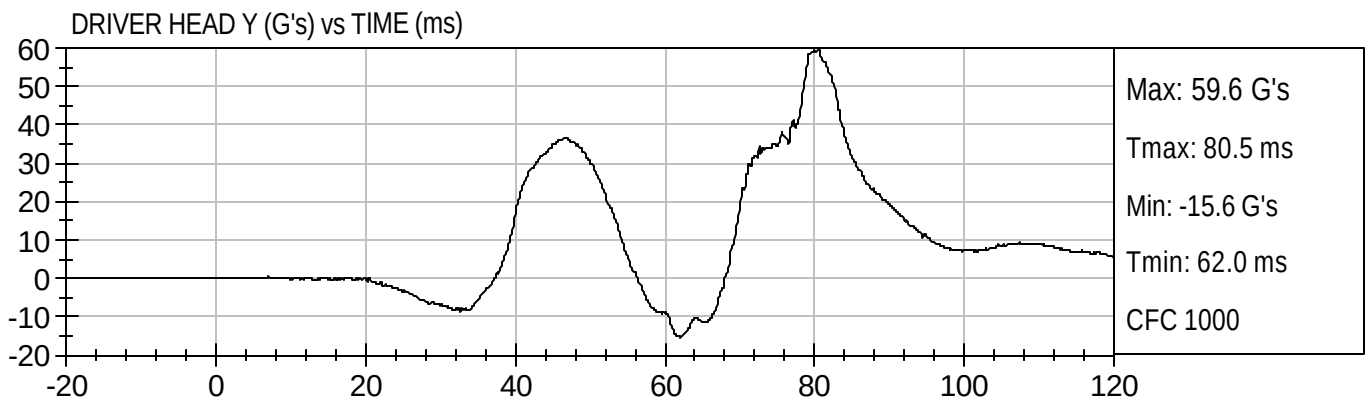
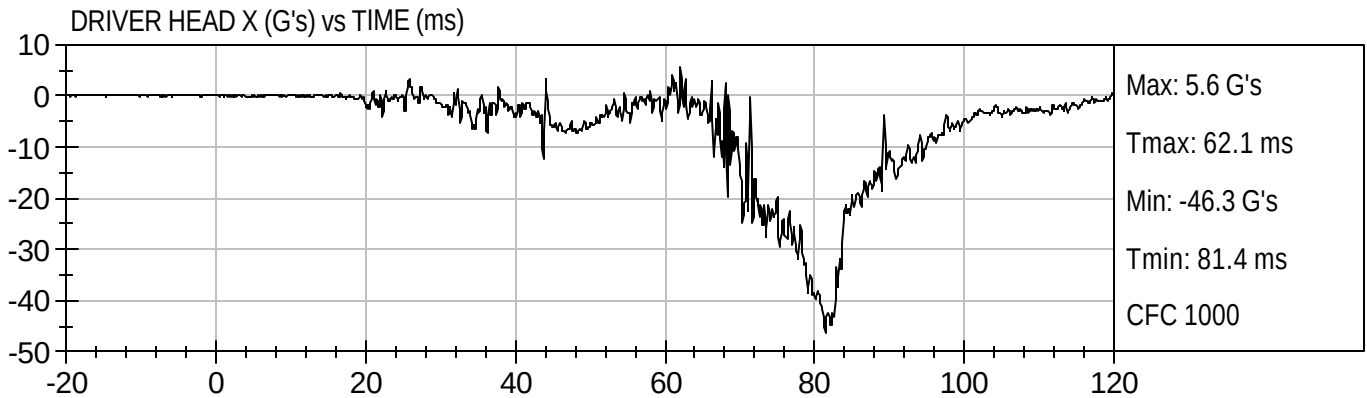
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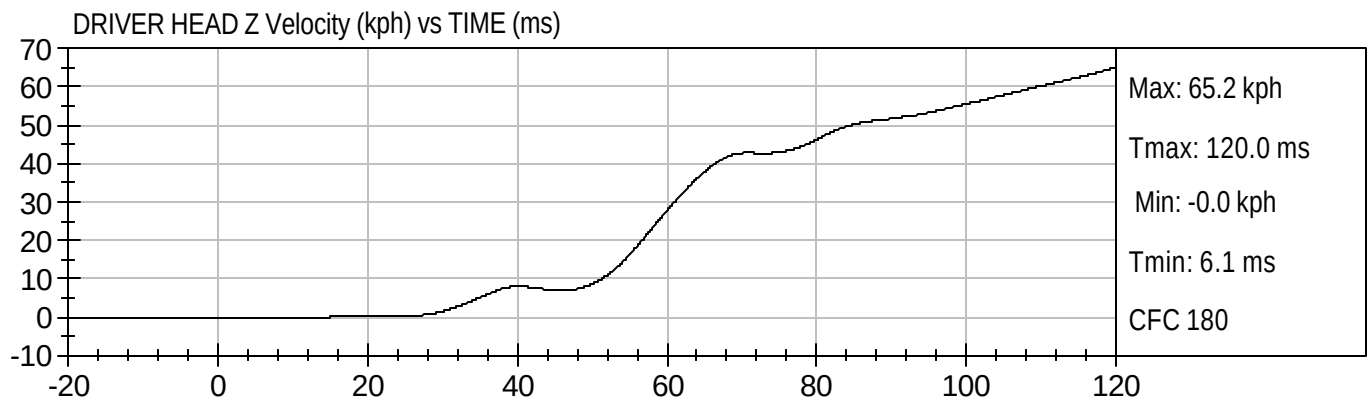
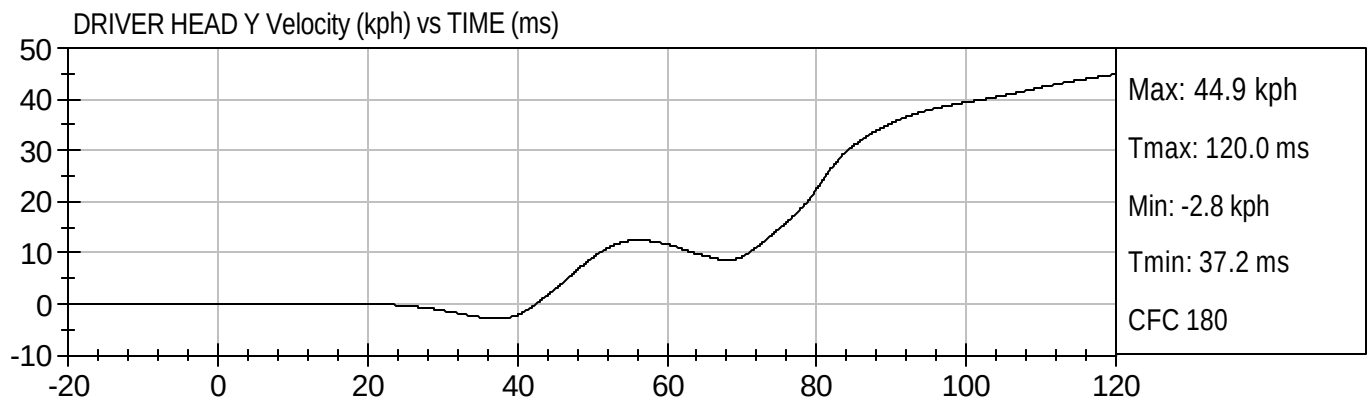
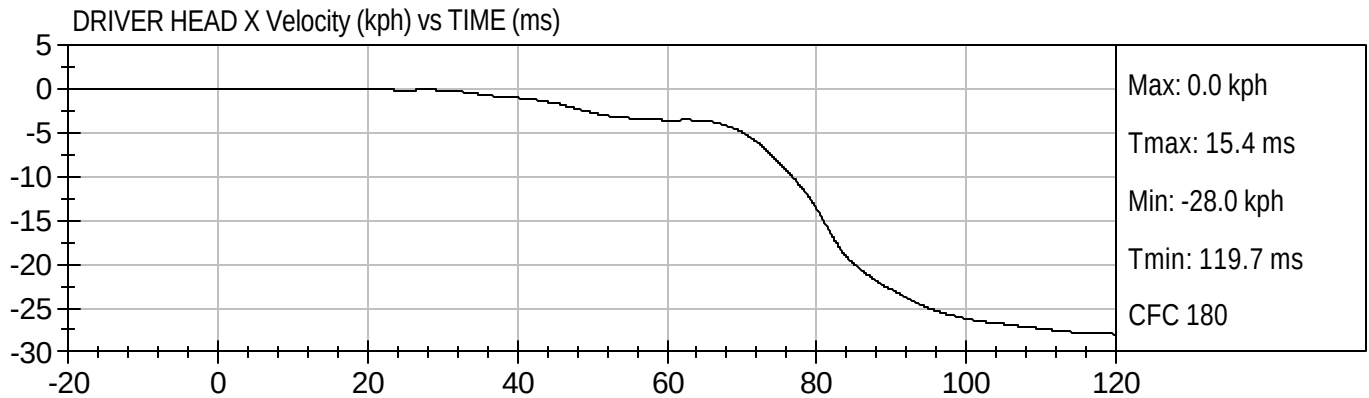
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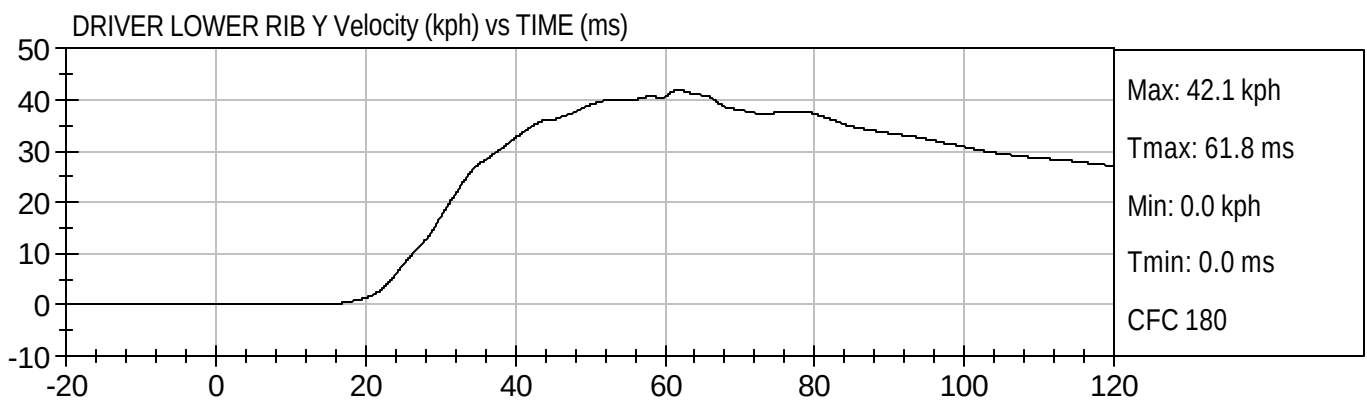
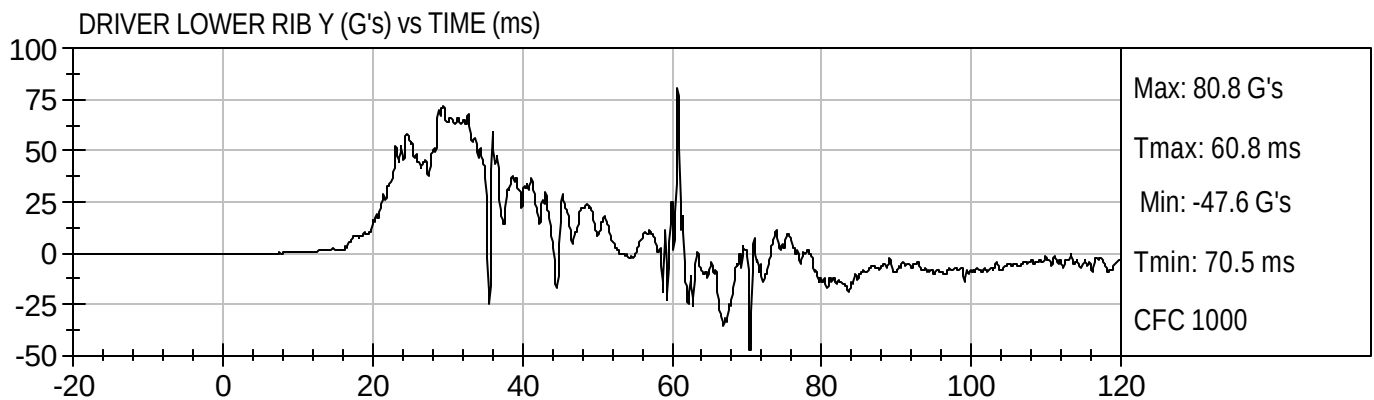
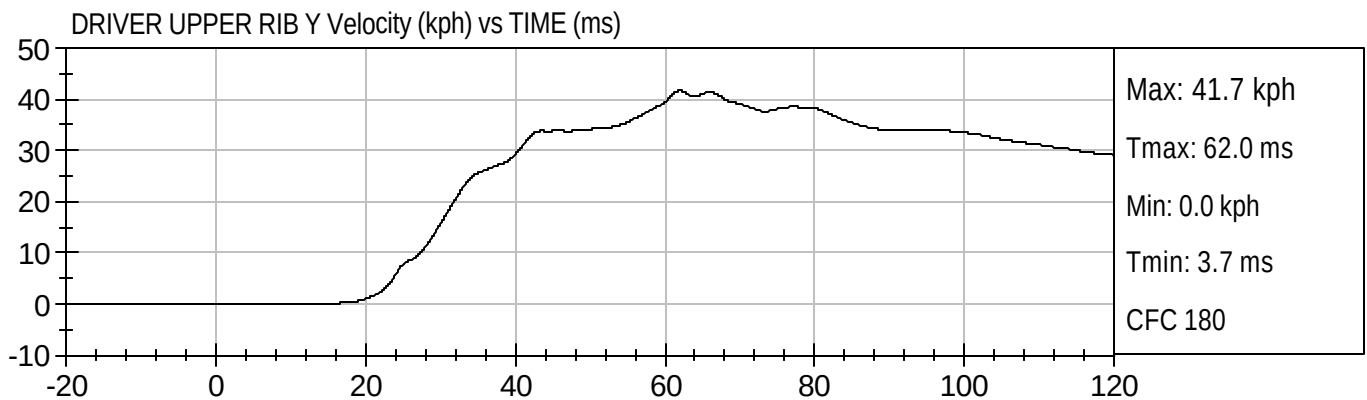
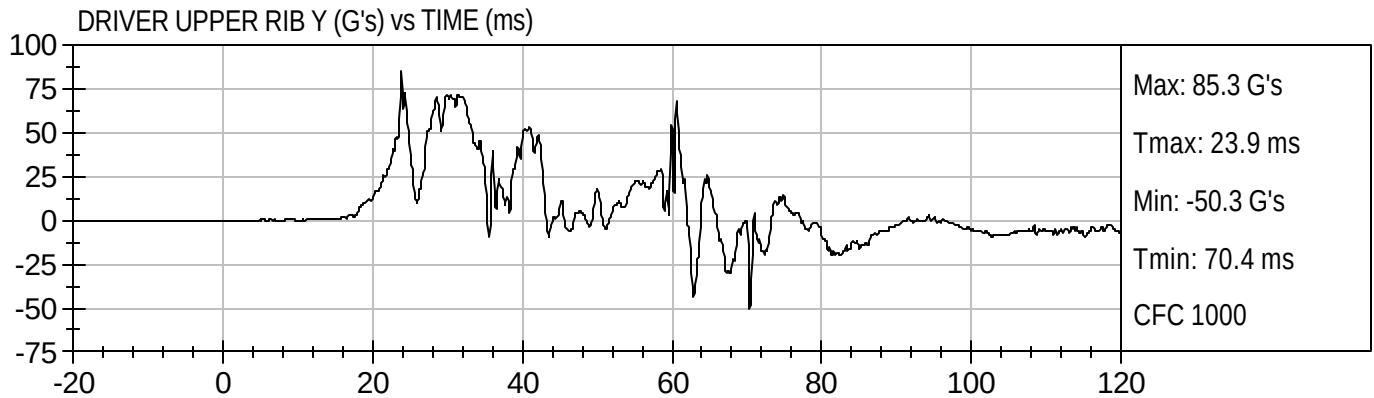
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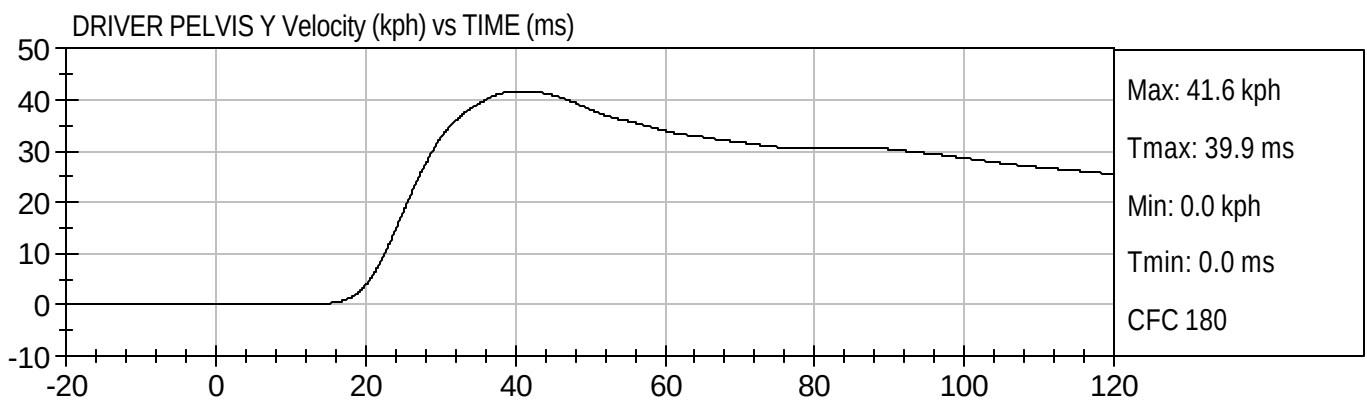
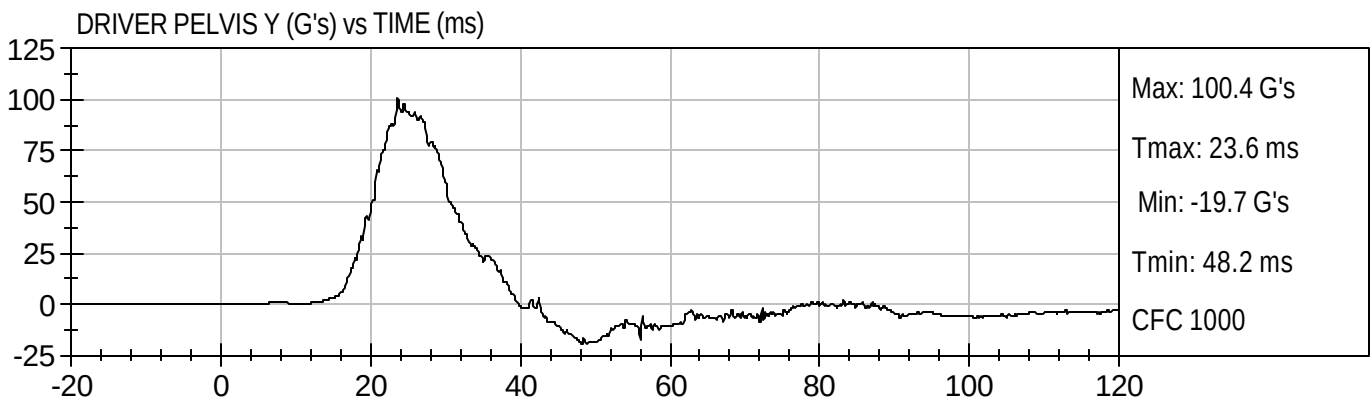
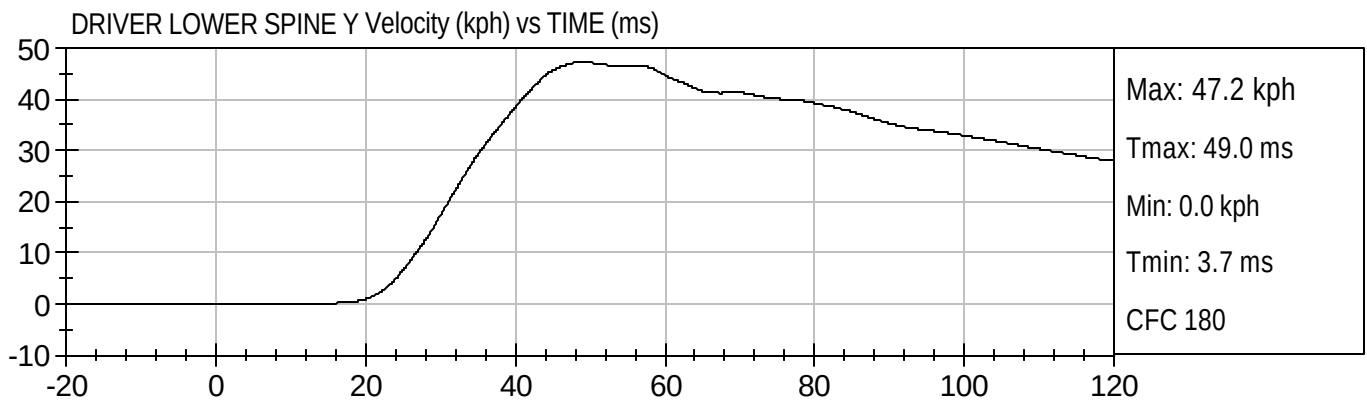
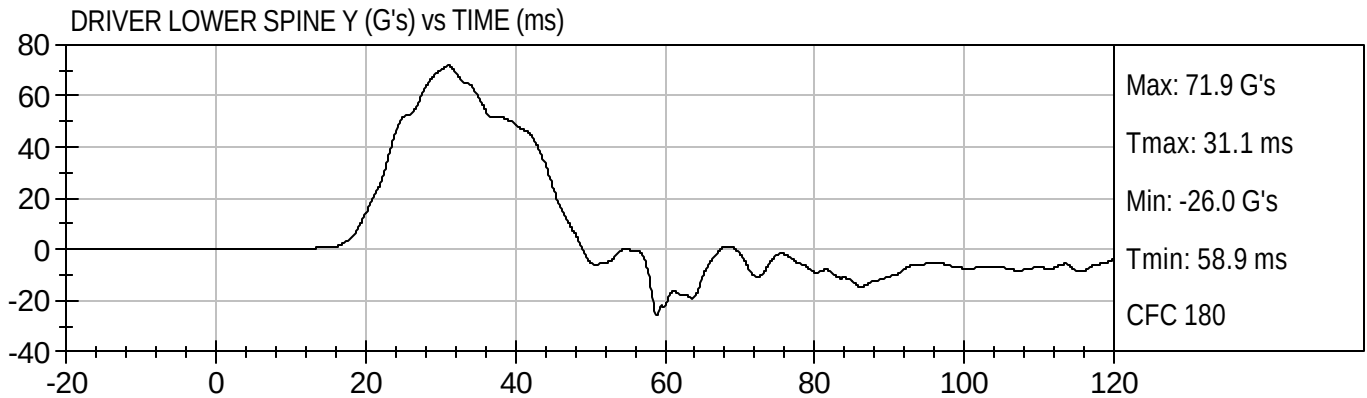
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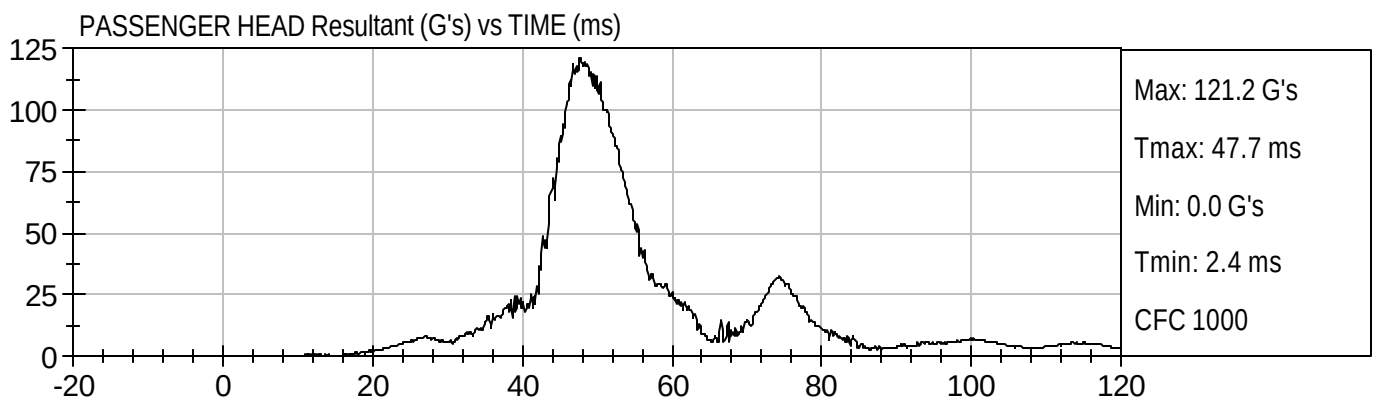
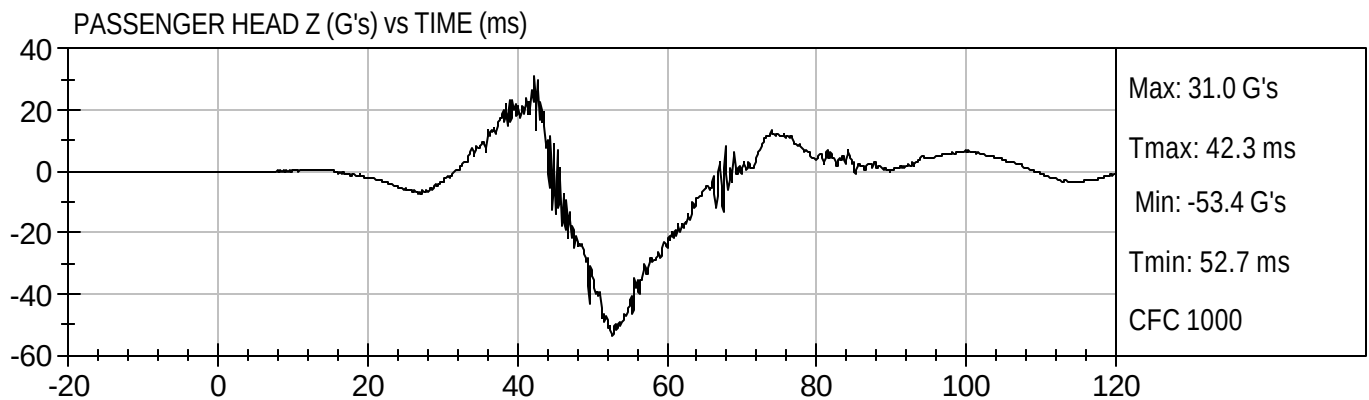
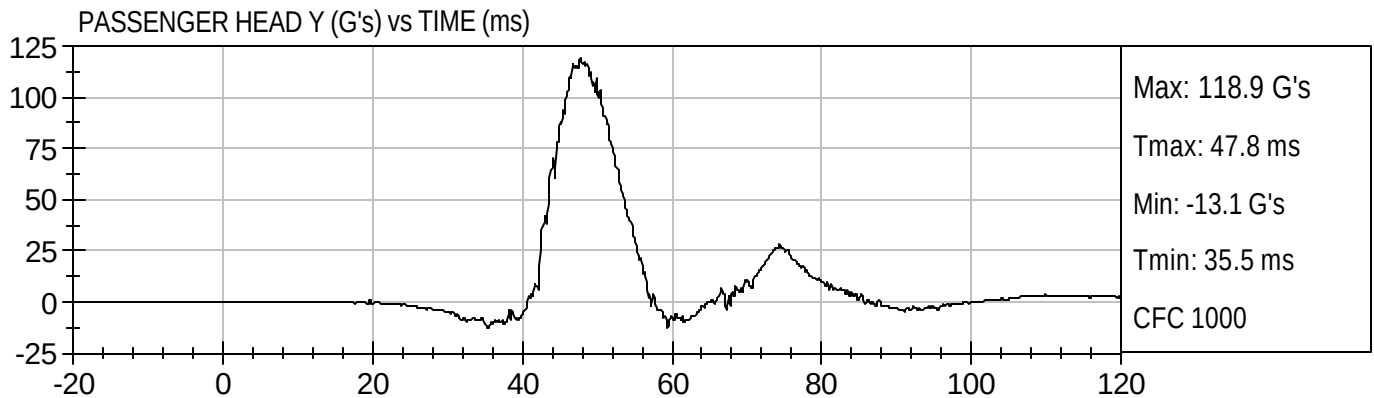
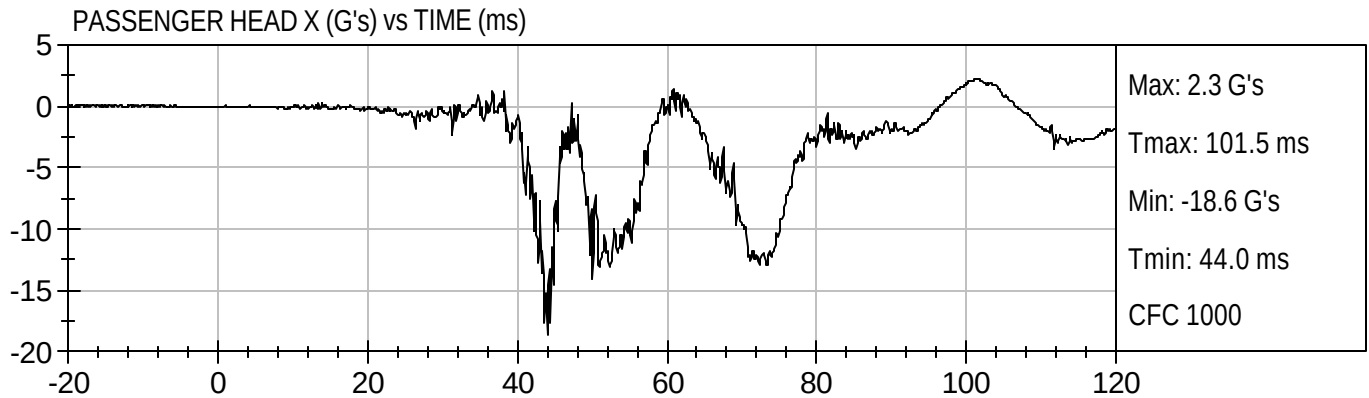


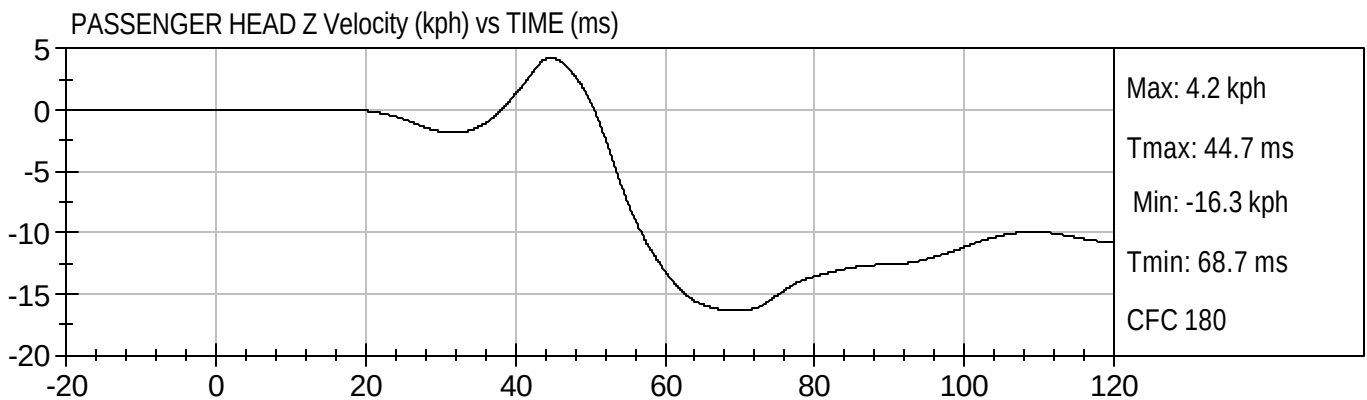
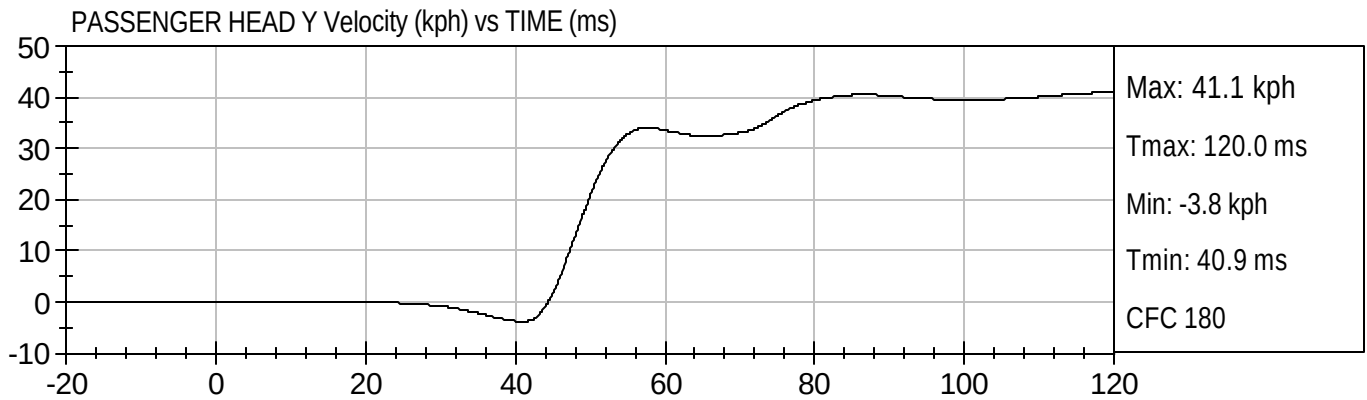
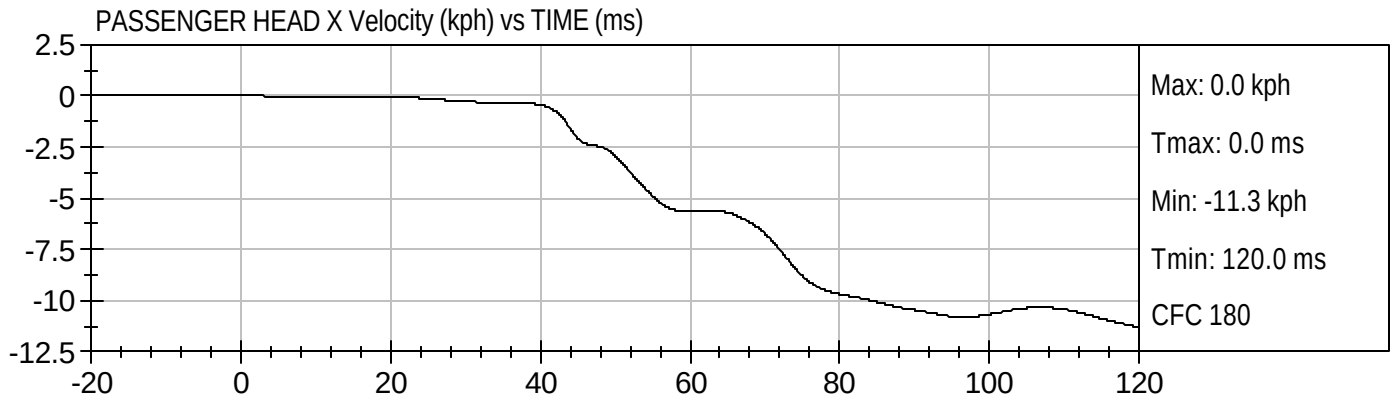




90 DEGREE INDICANT SIDE IMPACT
2003 TOYOTA COROLLA 4 DOOR (C25106)

Test Date: 3/06/02
Speed: 38.5 mph (62.0 km/h)

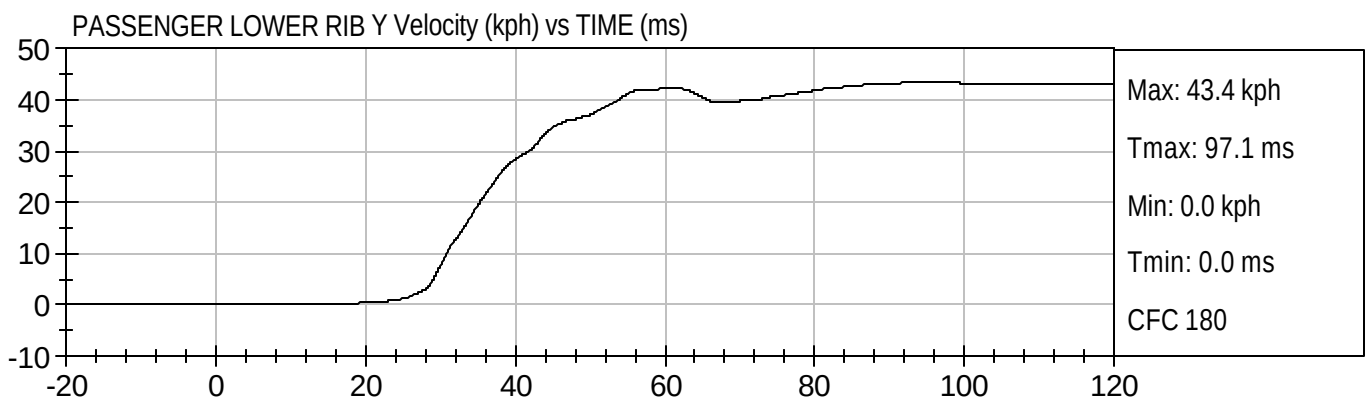
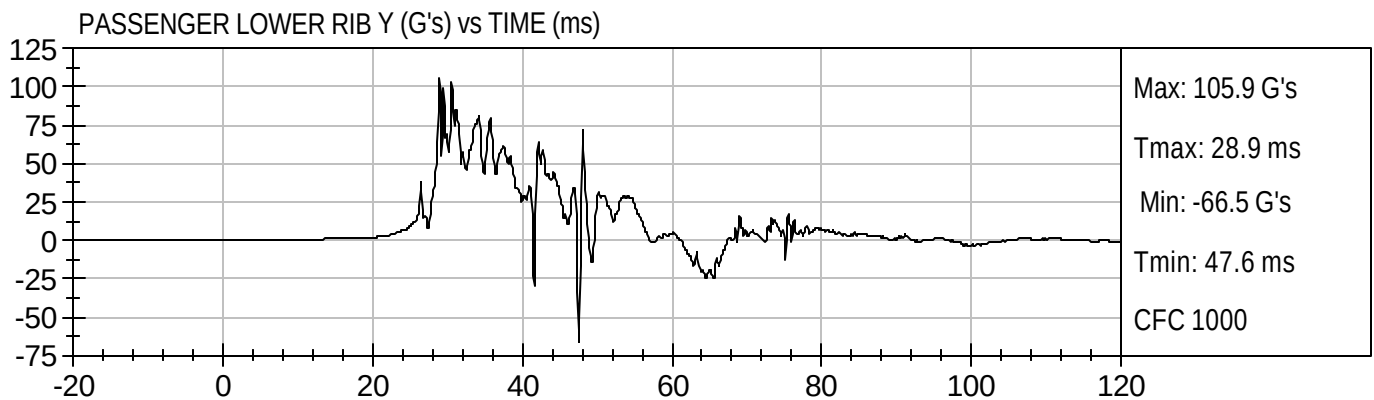
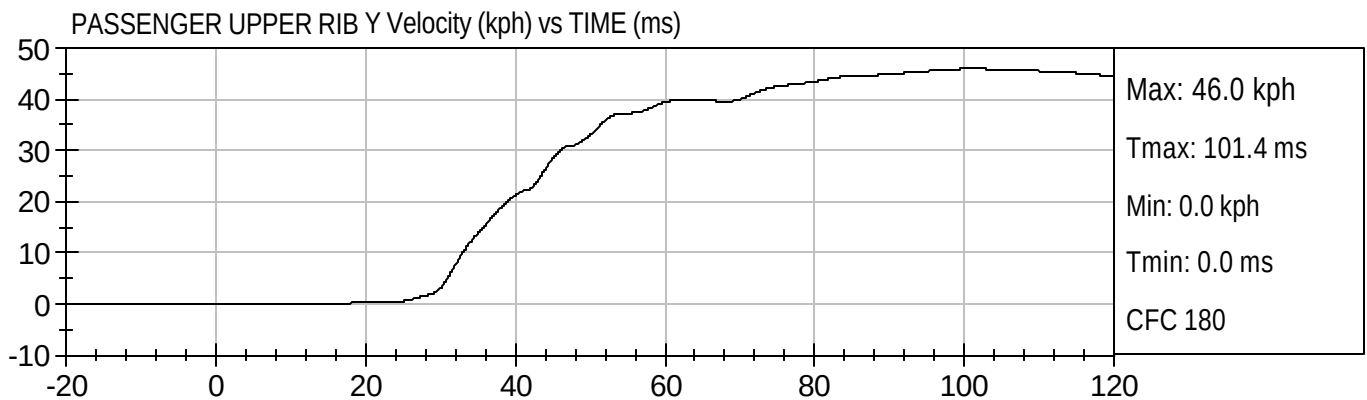
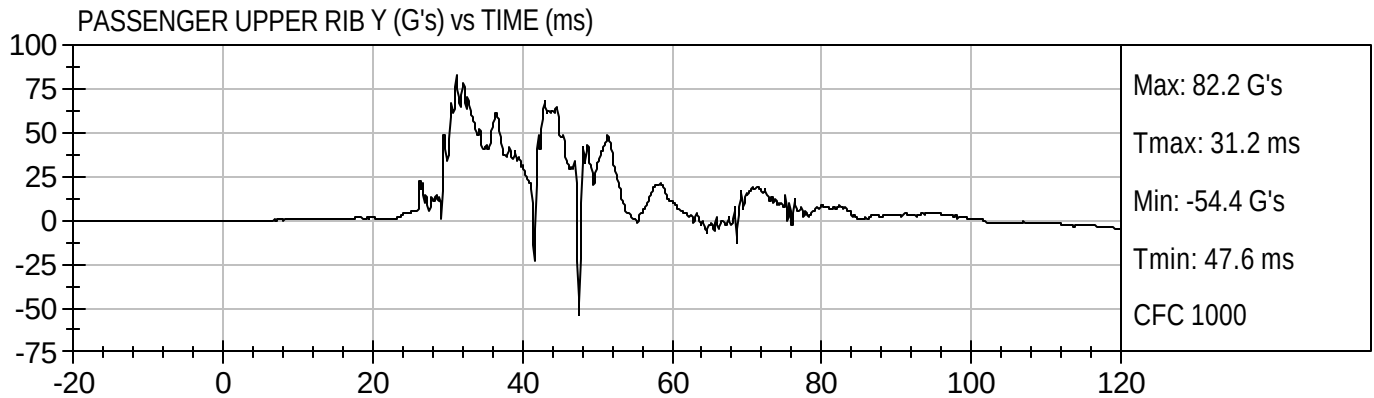


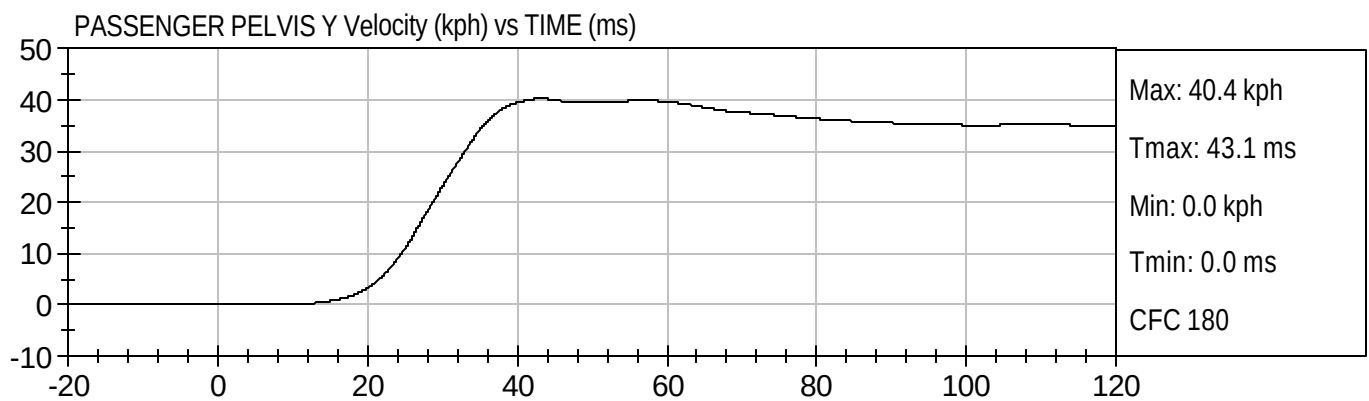
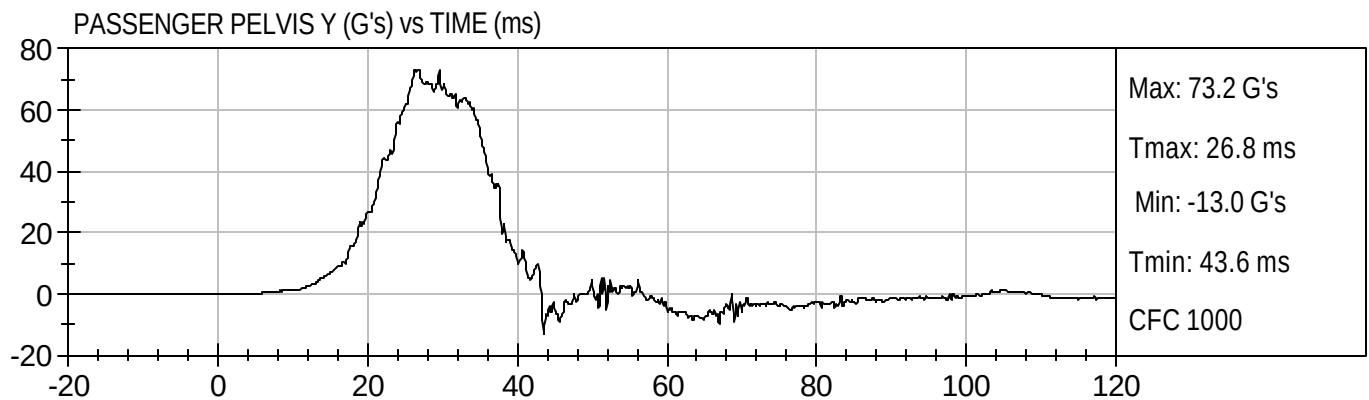
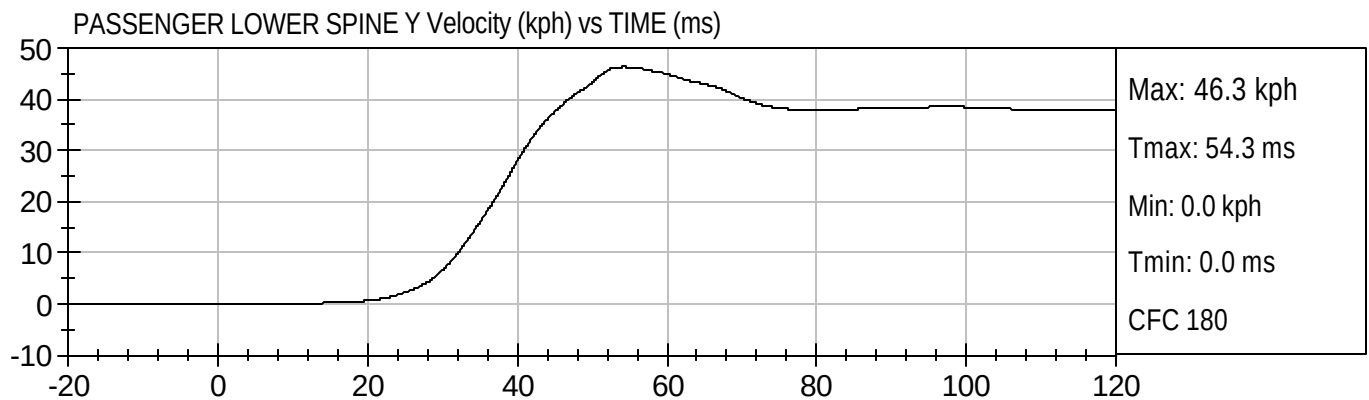
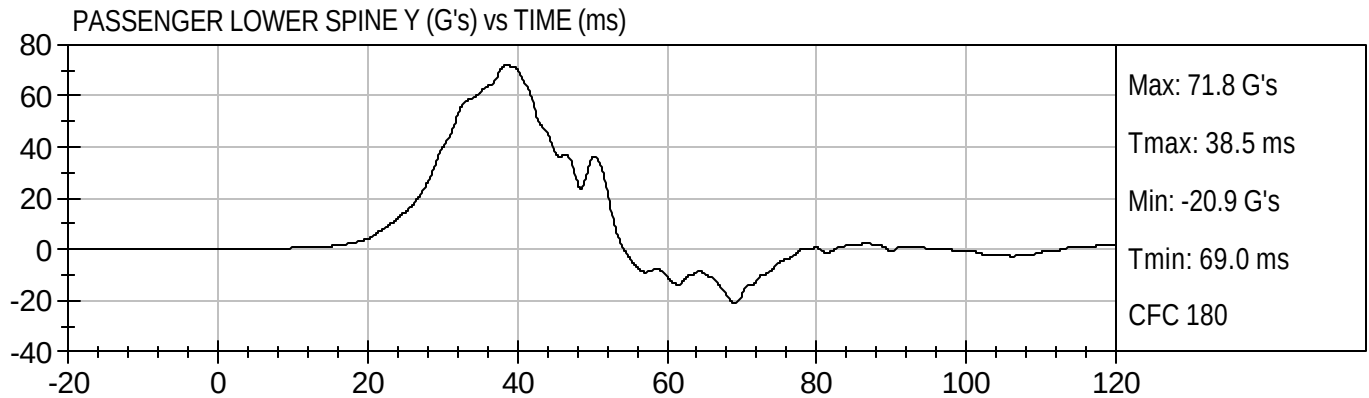


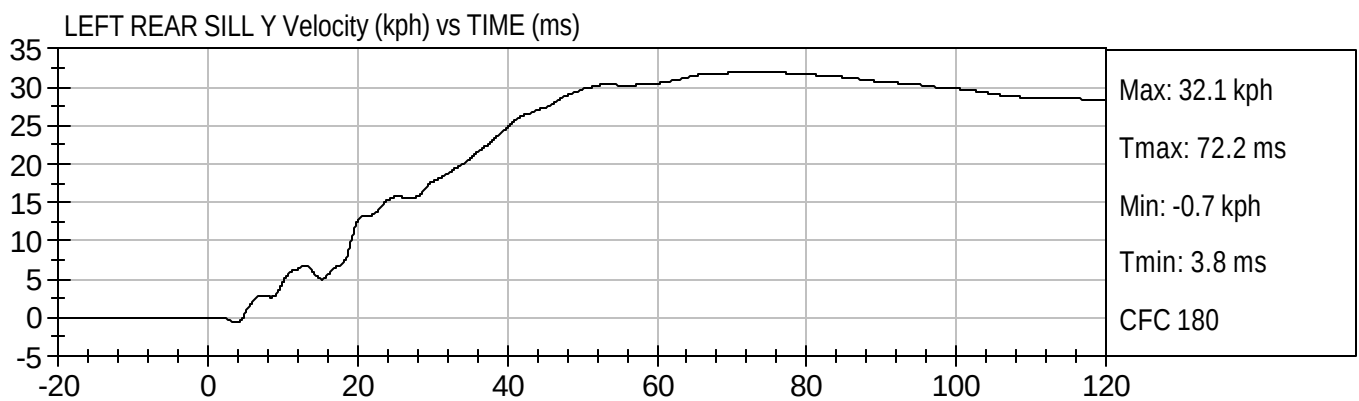
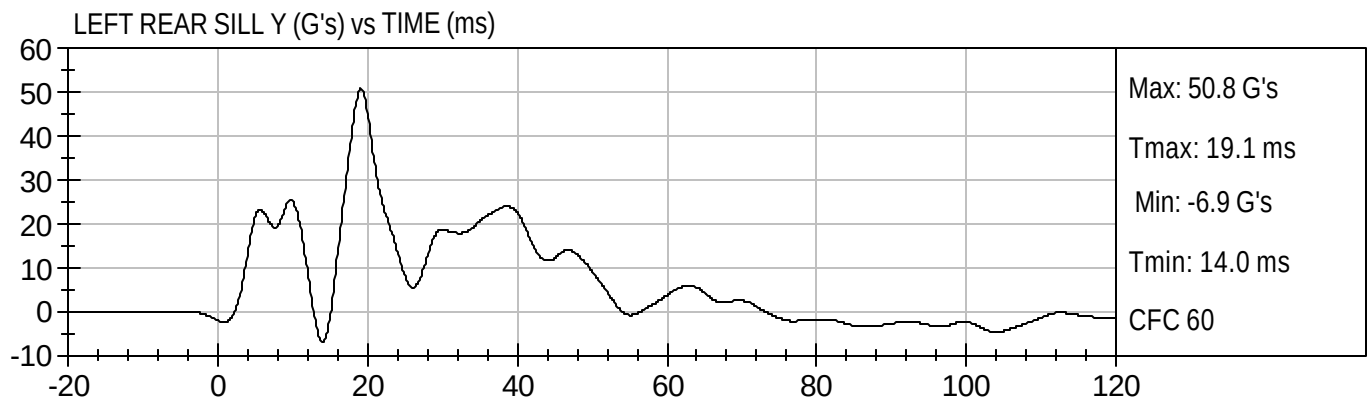
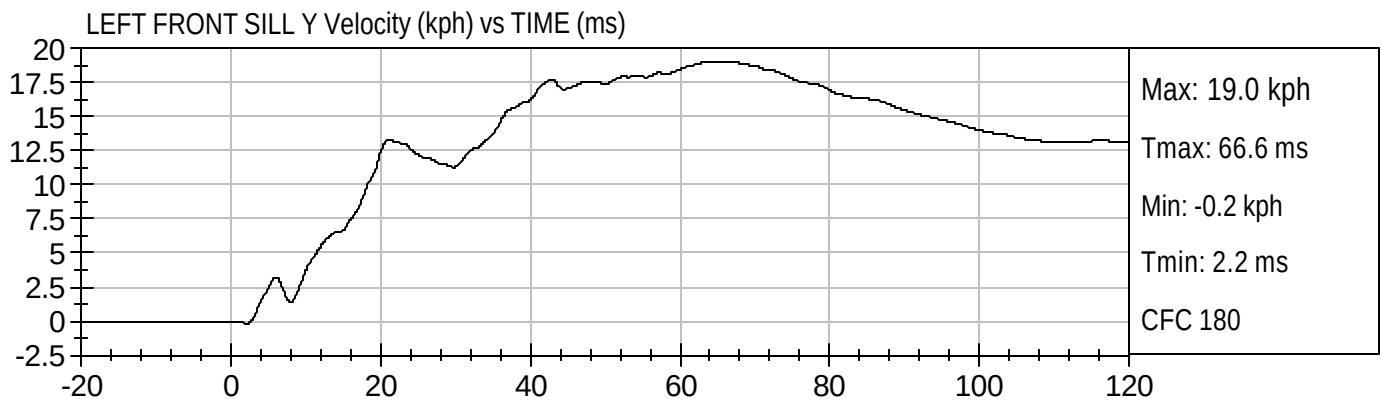
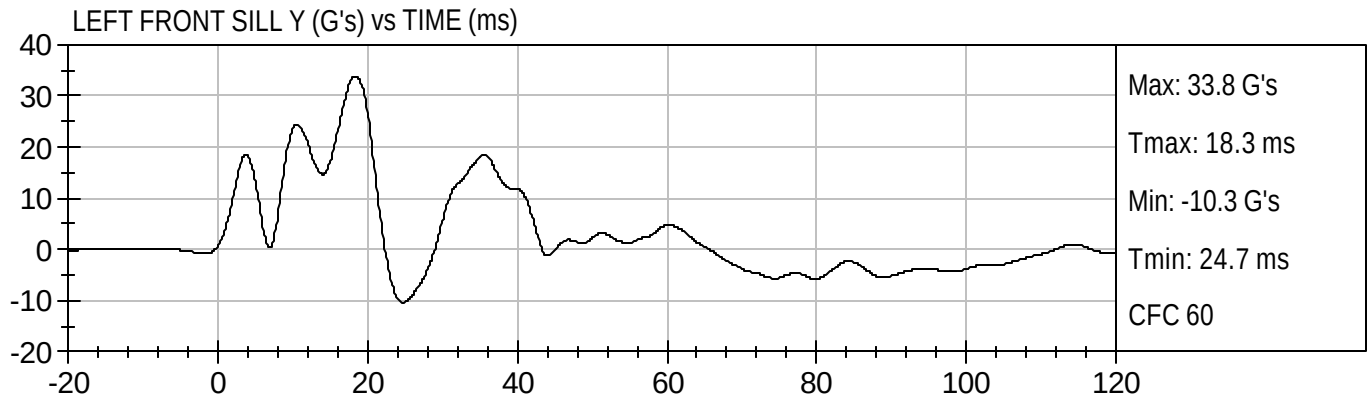


90 DEGREE INDICANT SIDE IMPACT
2003 TOYOTA COROLLA 4 DOOR (C25106)

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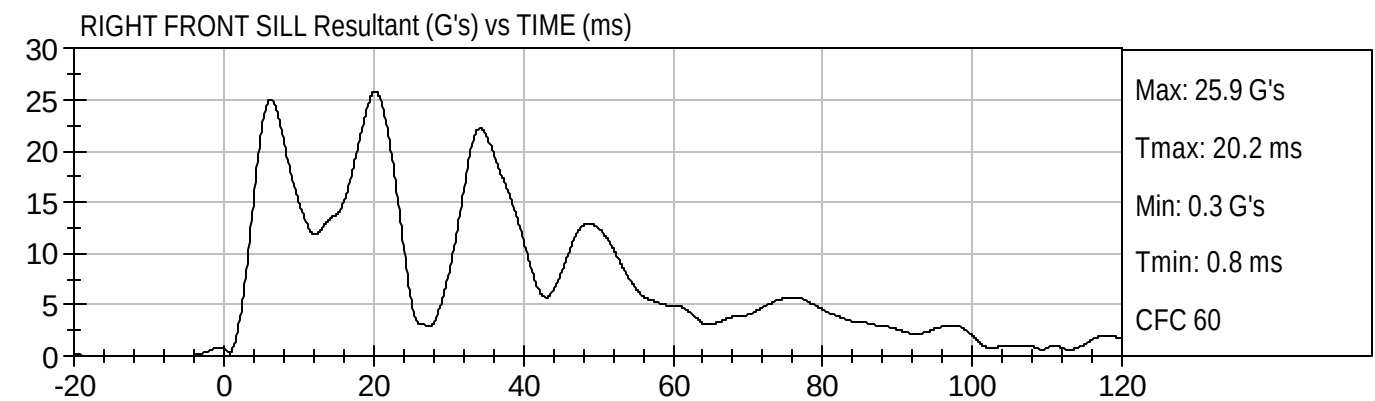
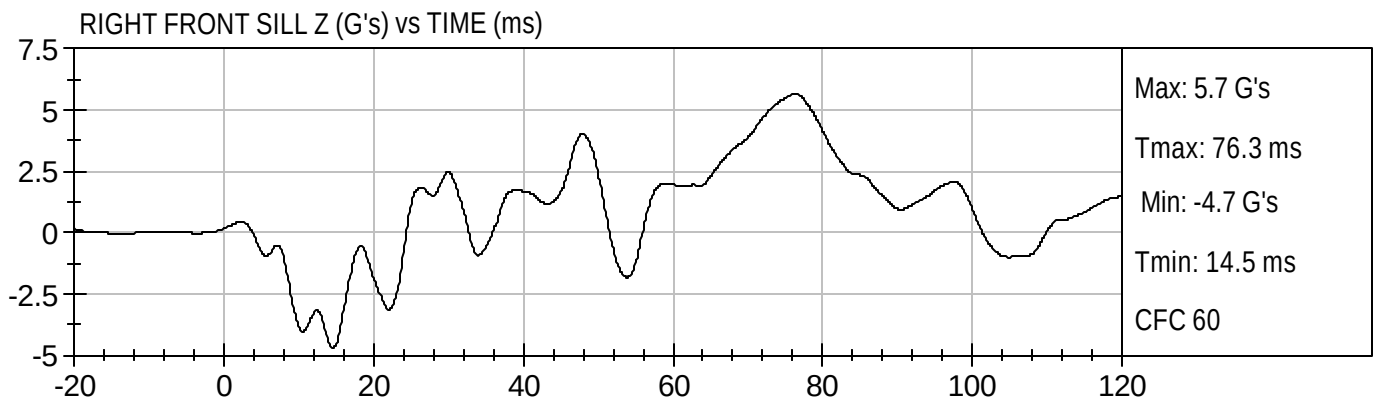
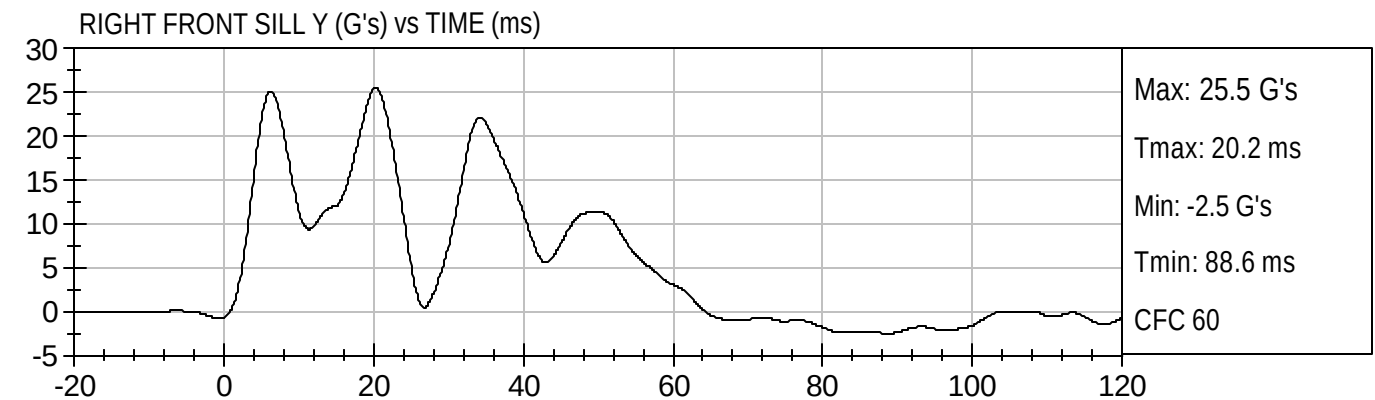
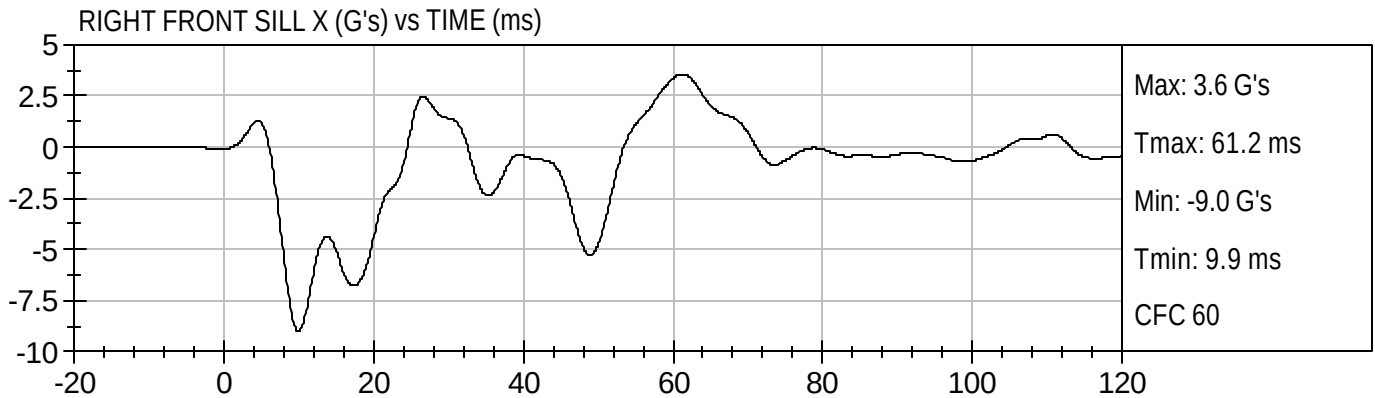


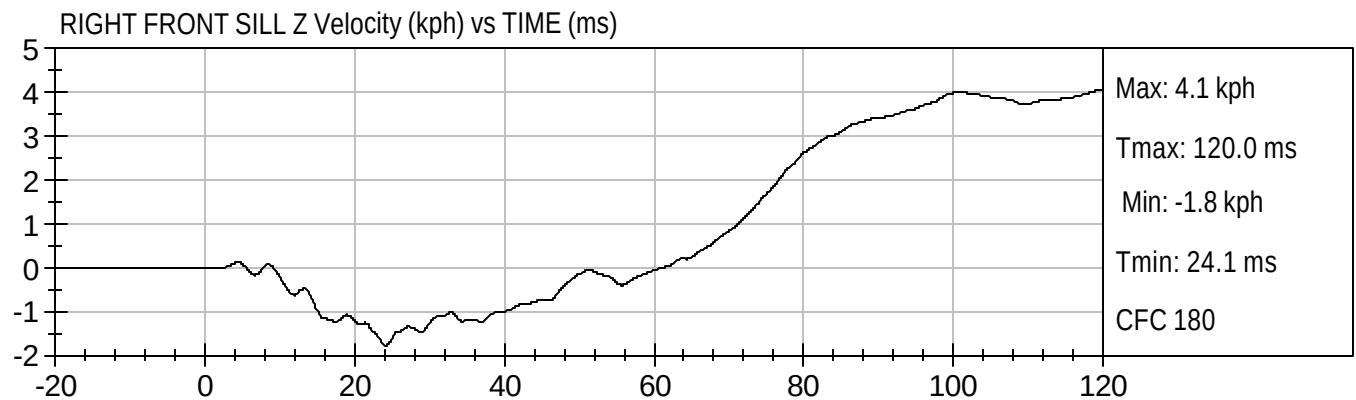
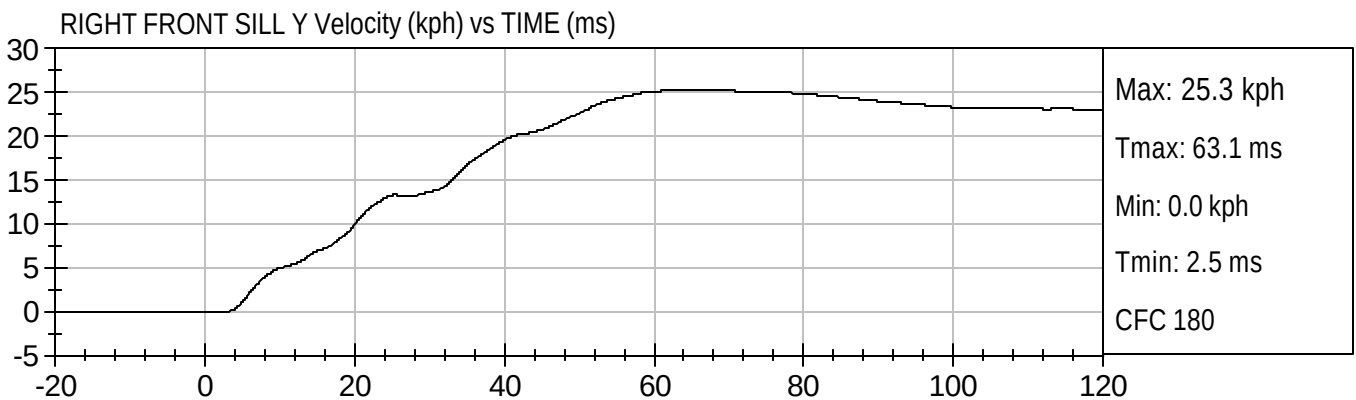
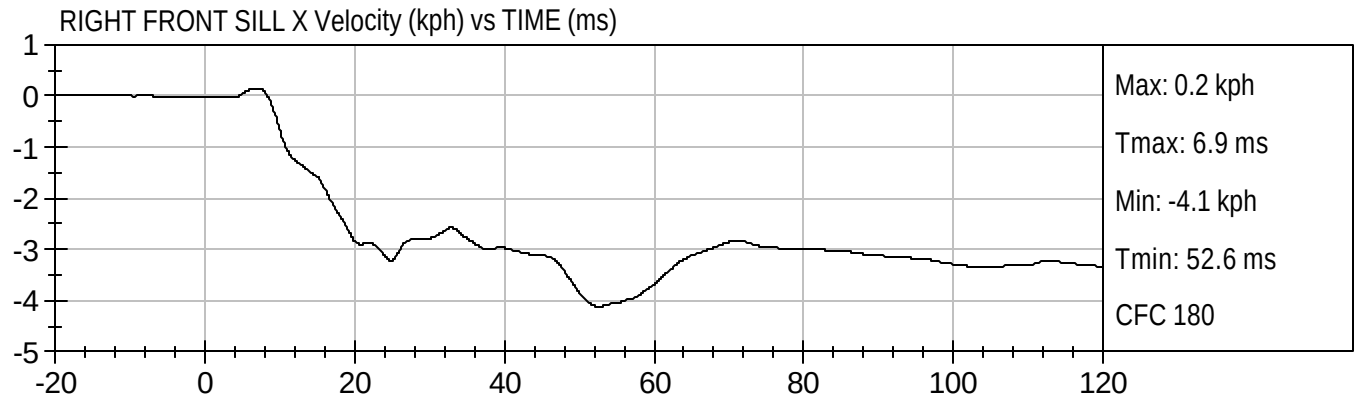




90 DEGREE INDICANT SIDE IMPACT
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Test Date: 3/06/02
Speed: 38.5 mph (62.0 km/h)

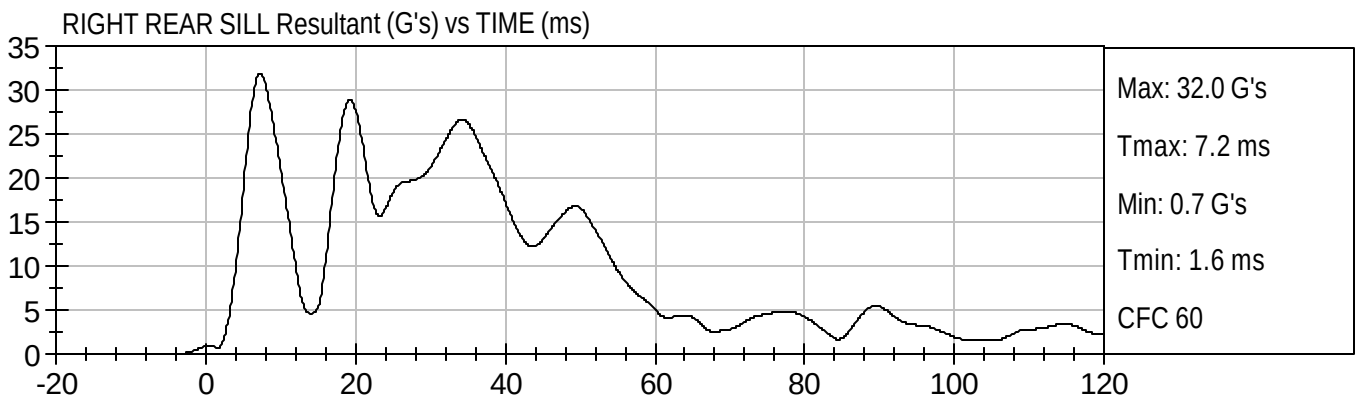
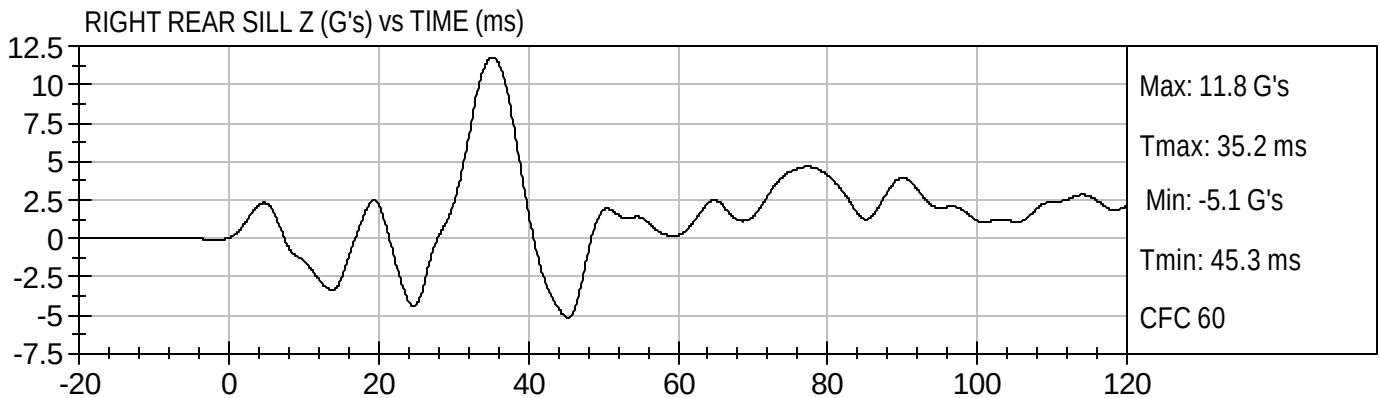
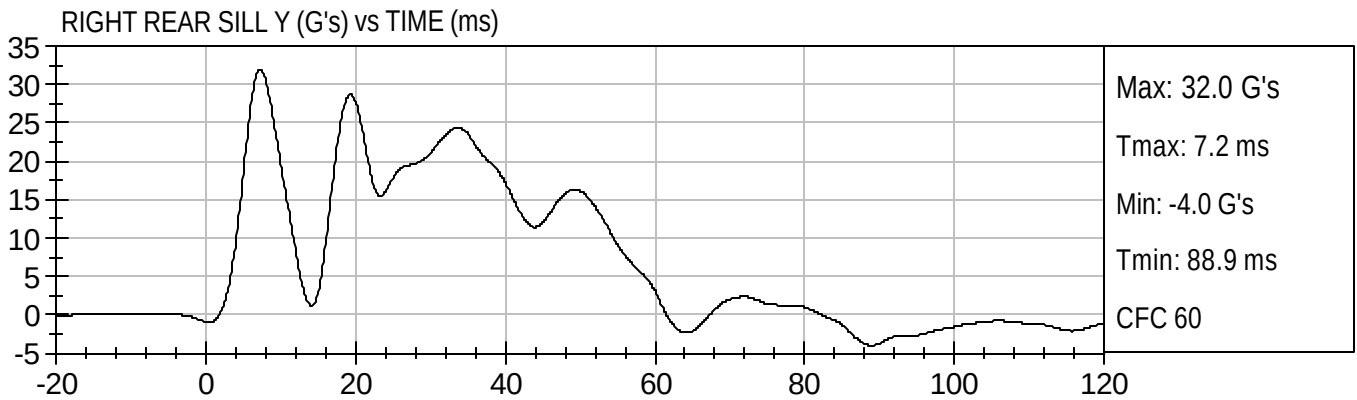
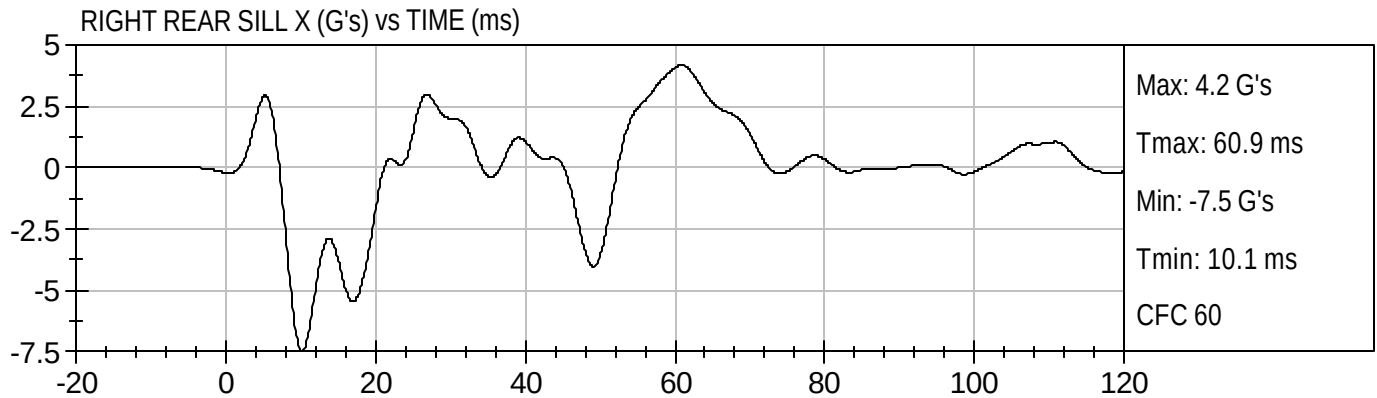


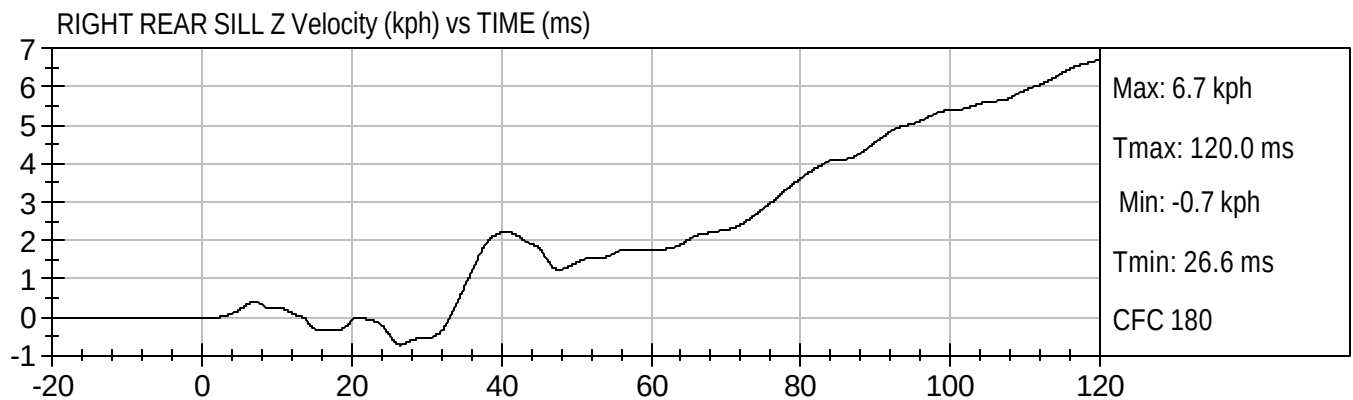
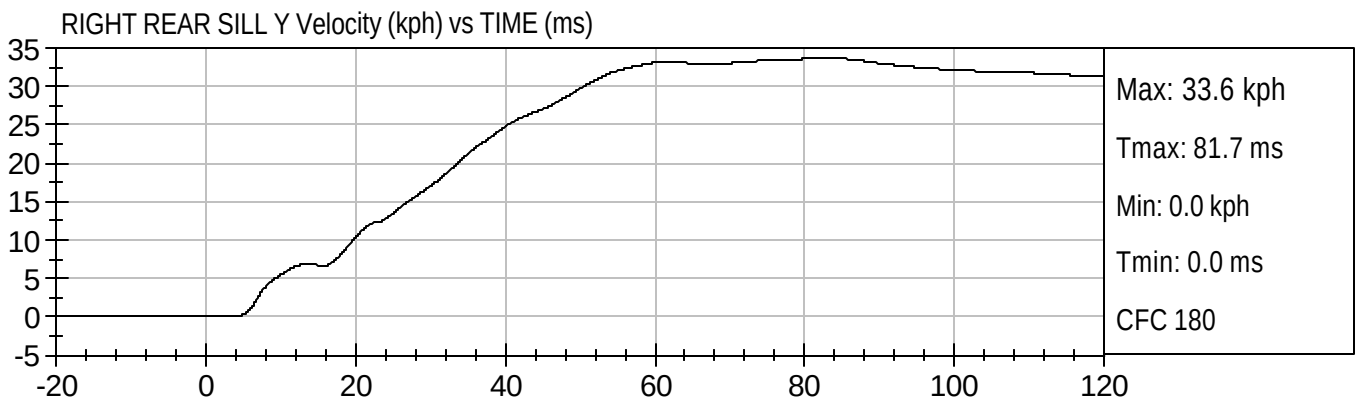
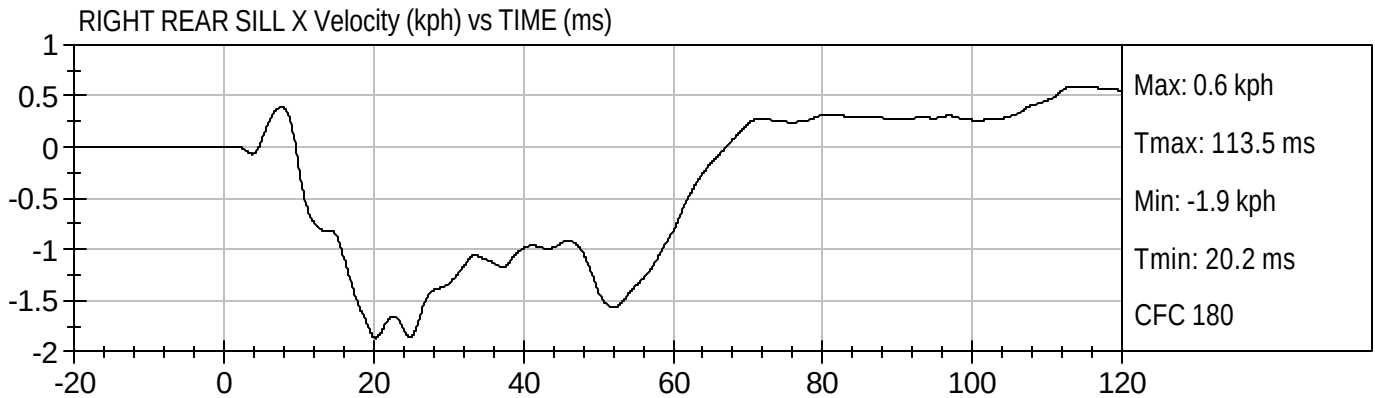




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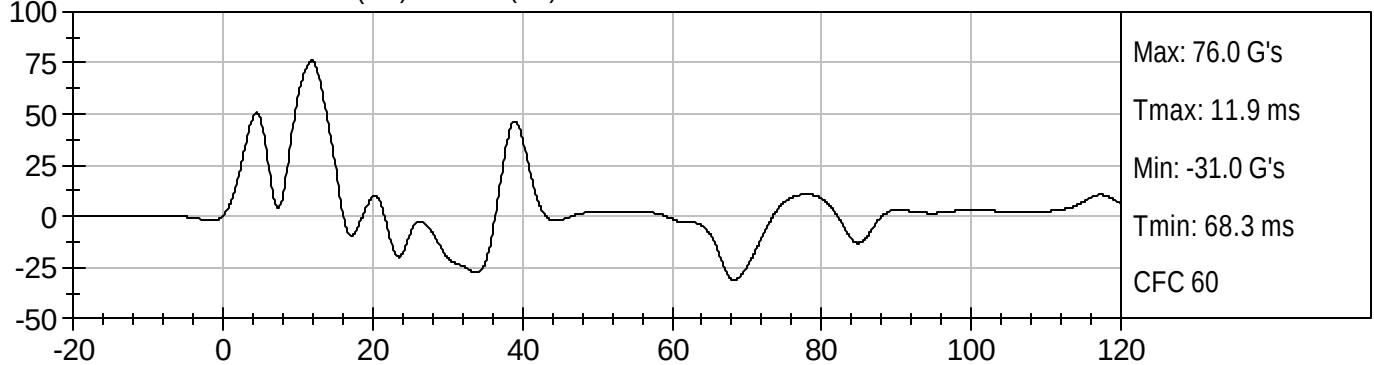
Test Date: 3/06/02
Speed: 38.5 mph (62.0 km/h)



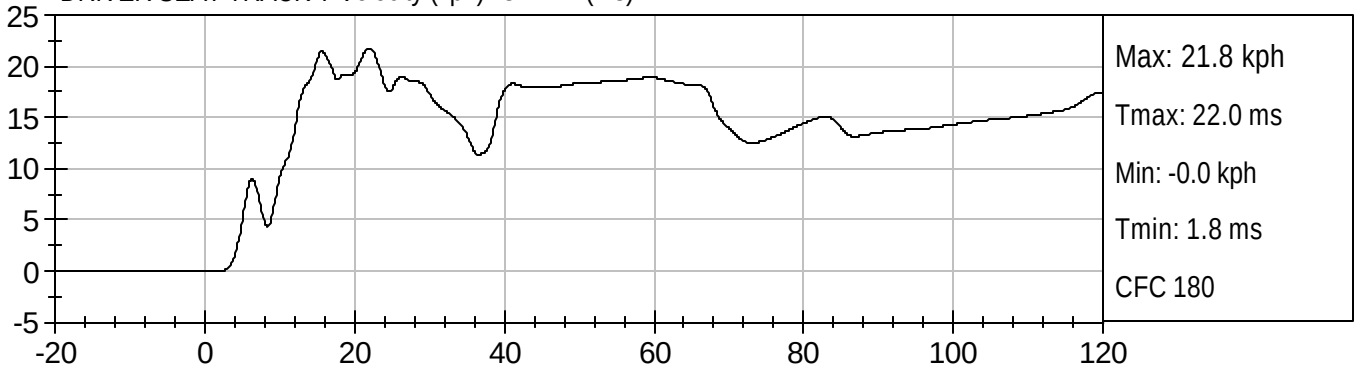




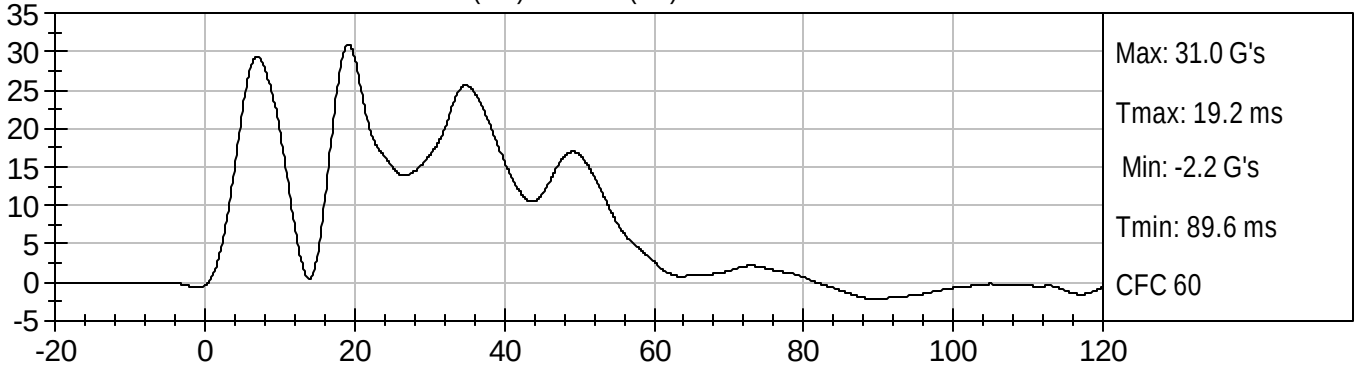
DRIVER SEAT TRACK Y (G's) vs TIME (ms)



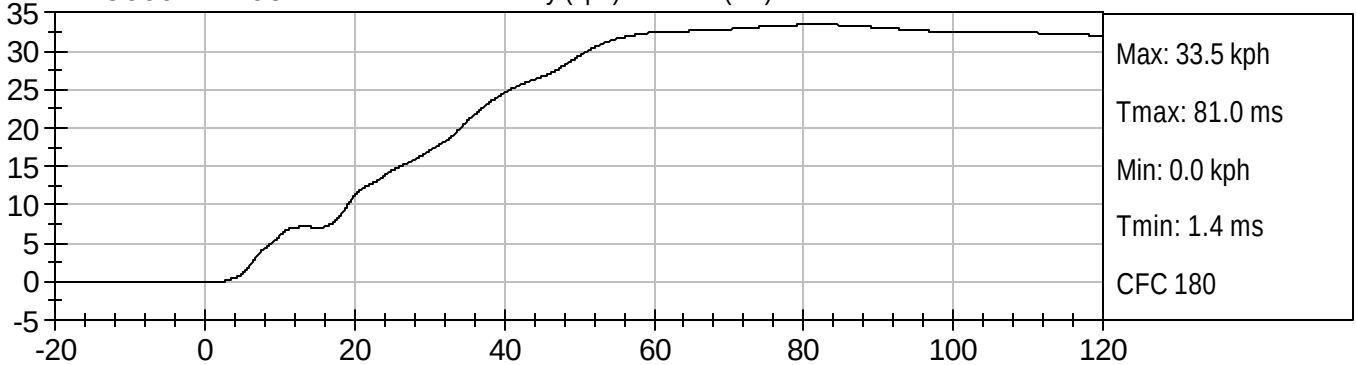
DRIVER SEAT TRACK Y Velocity (kph) vs TIME (ms)

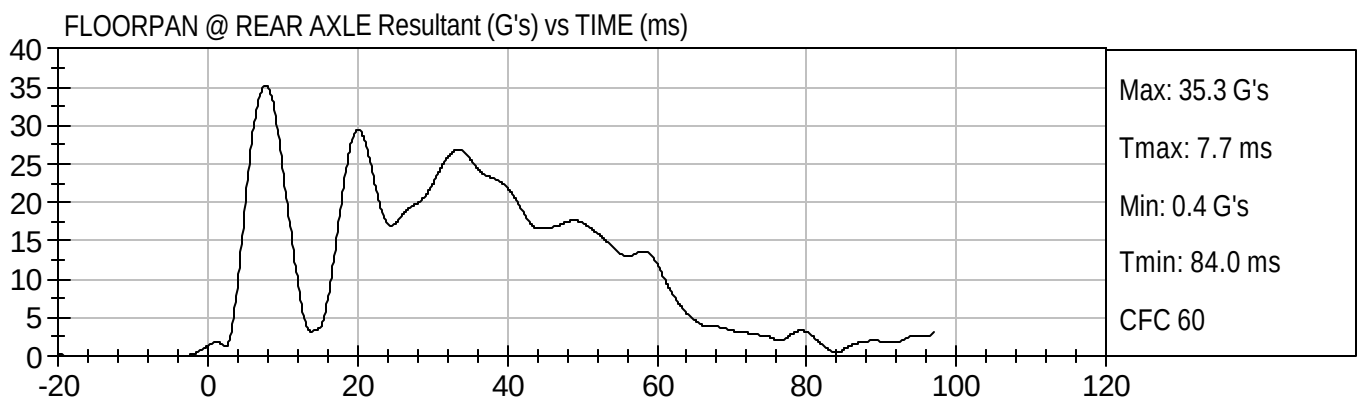
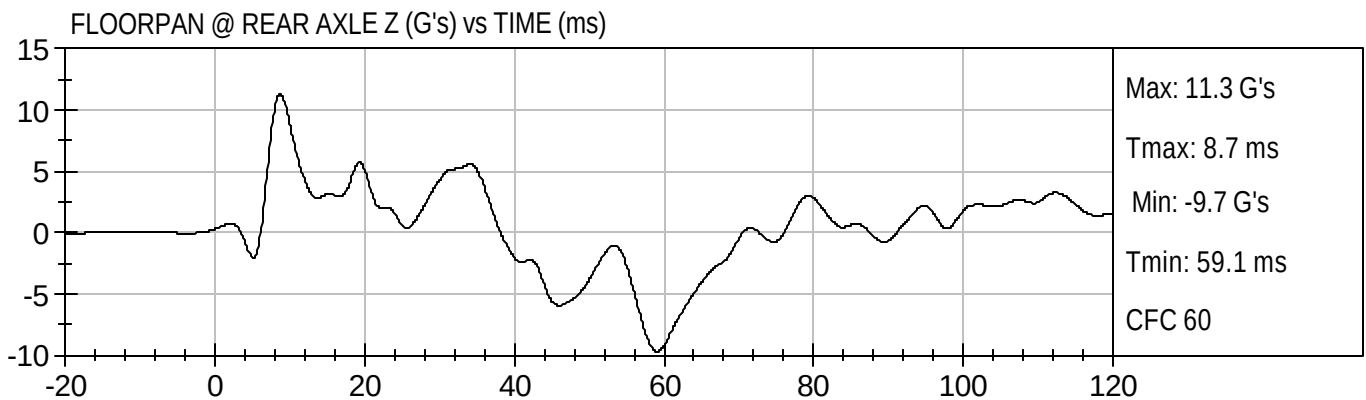
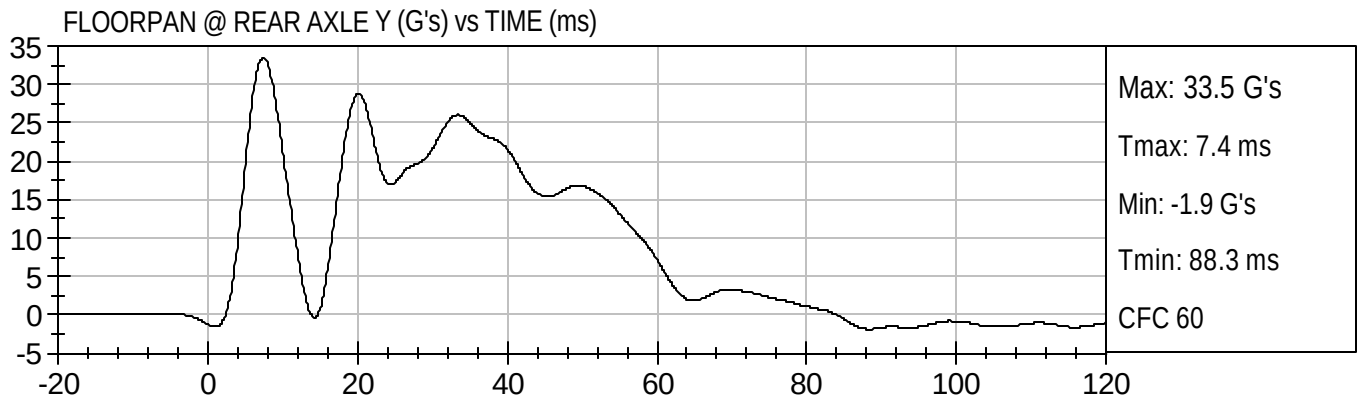
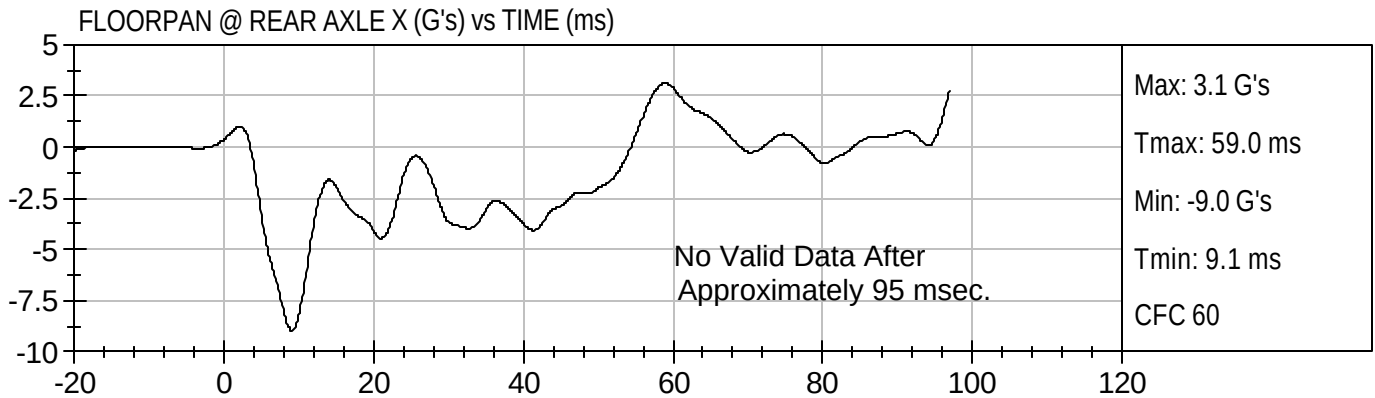


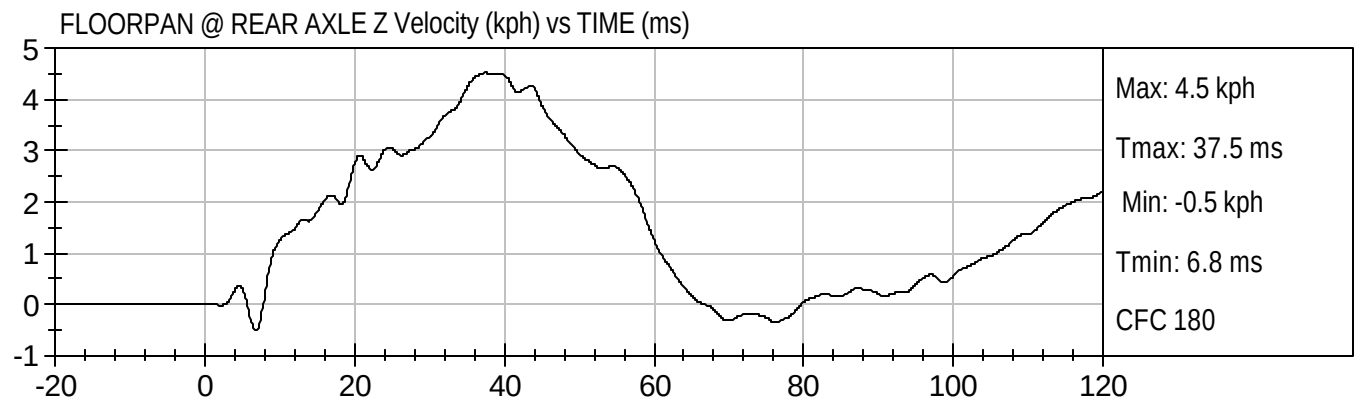
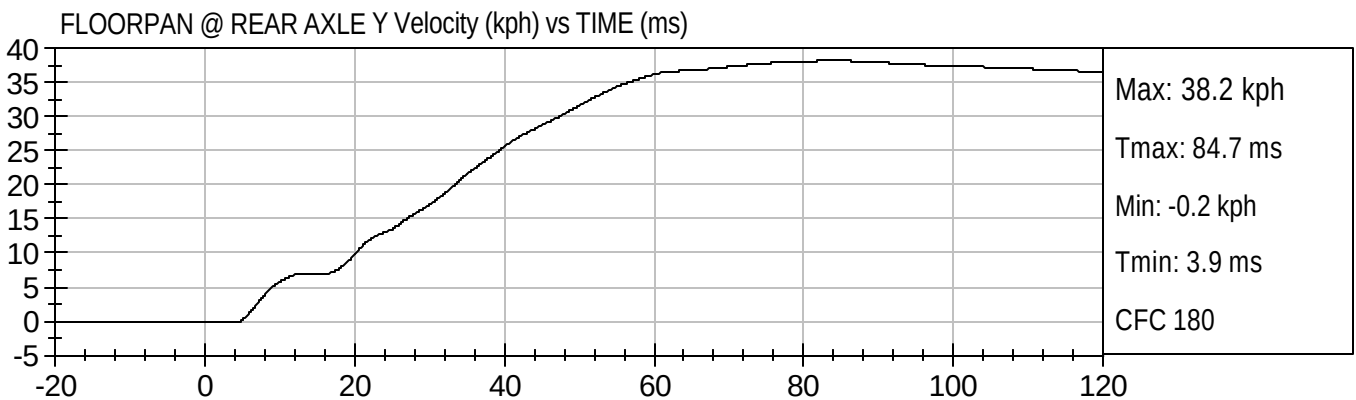
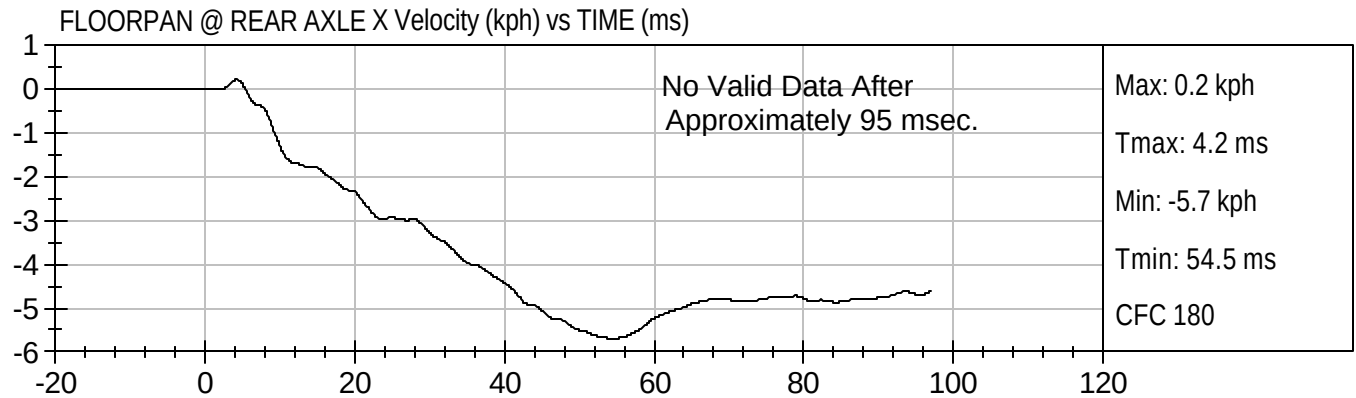
RR OCCUPANT COMPARTMENT Y (G's) vs TIME (ms)



RR OCCUPANT COMPARTMENT Y Velocity (kph) vs TIME (ms)

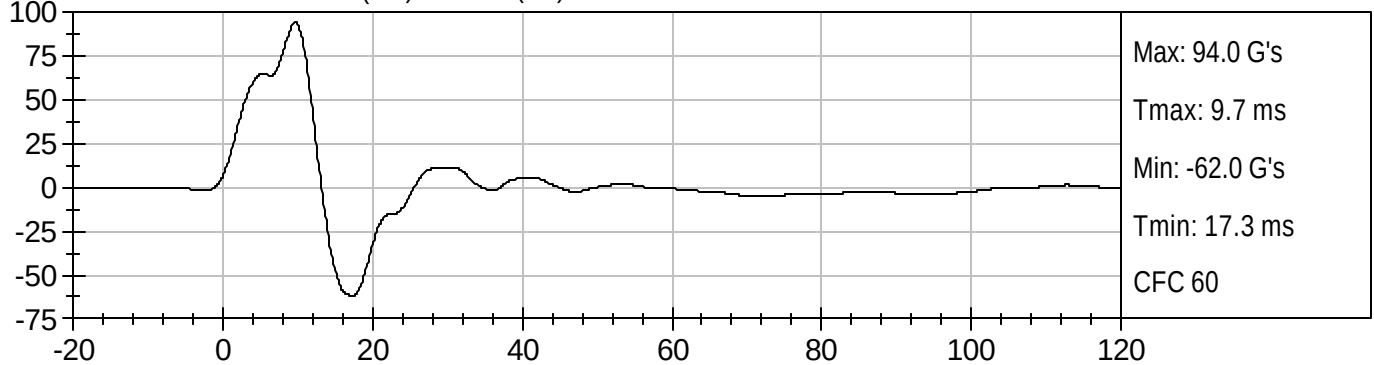




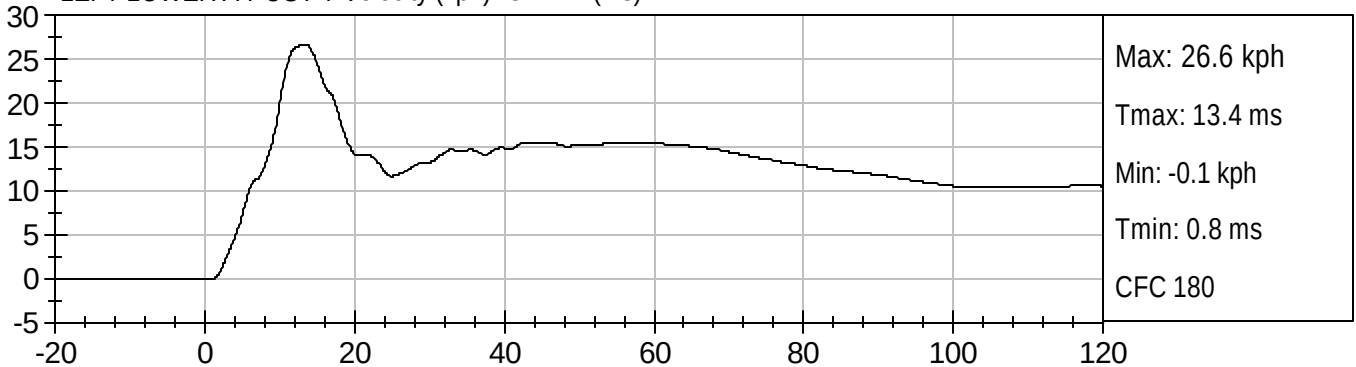




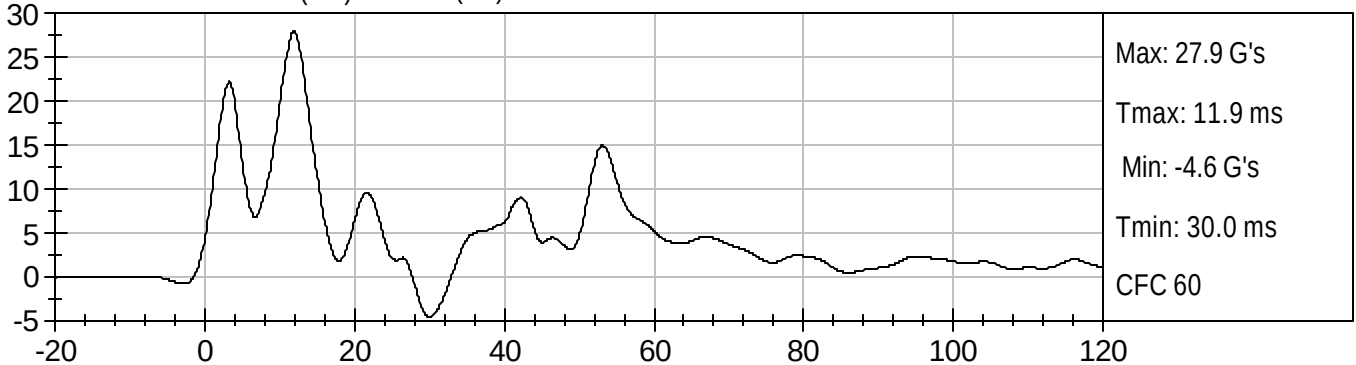
LEFT LOWER A-POST Y (G's) vs TIME (ms)



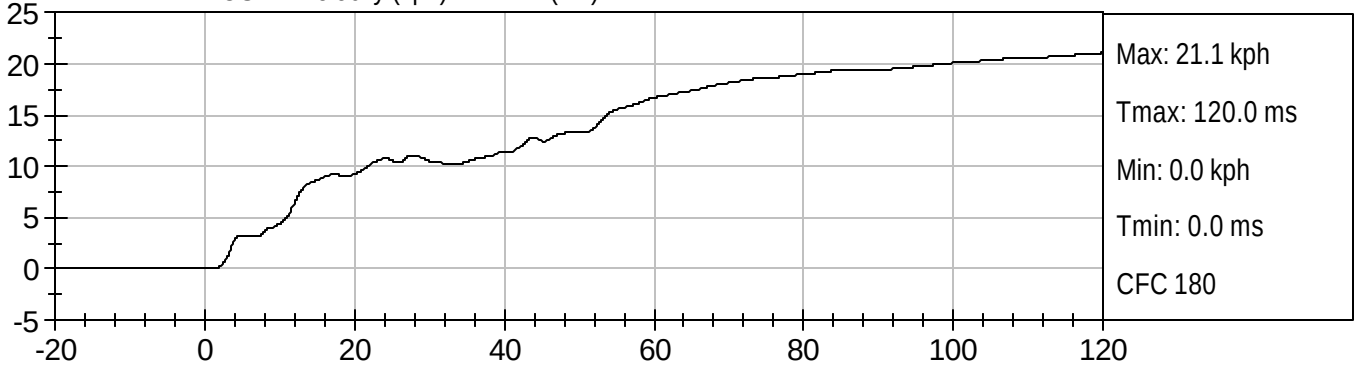
LEFT LOWER A-POST Y Velocity (kph) vs TIME (ms)

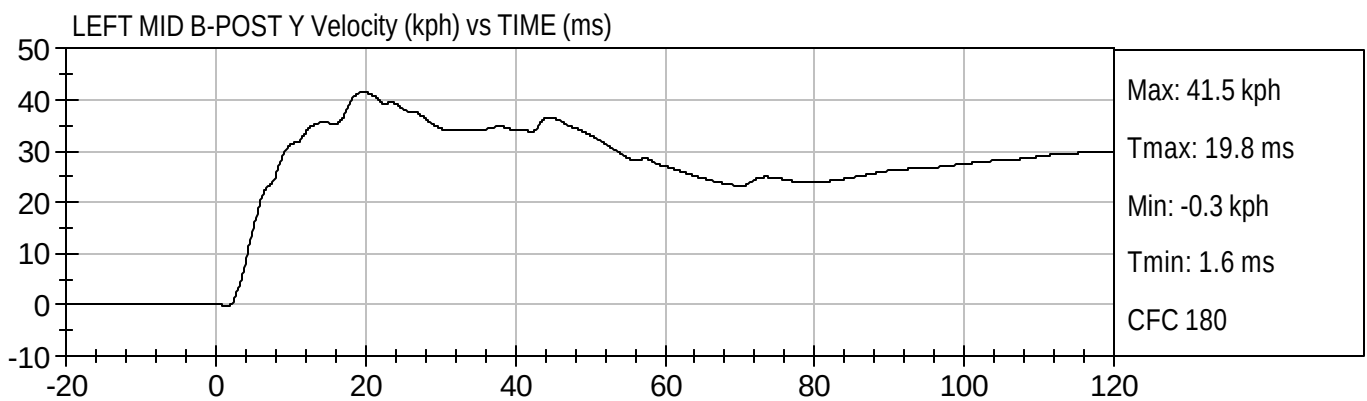
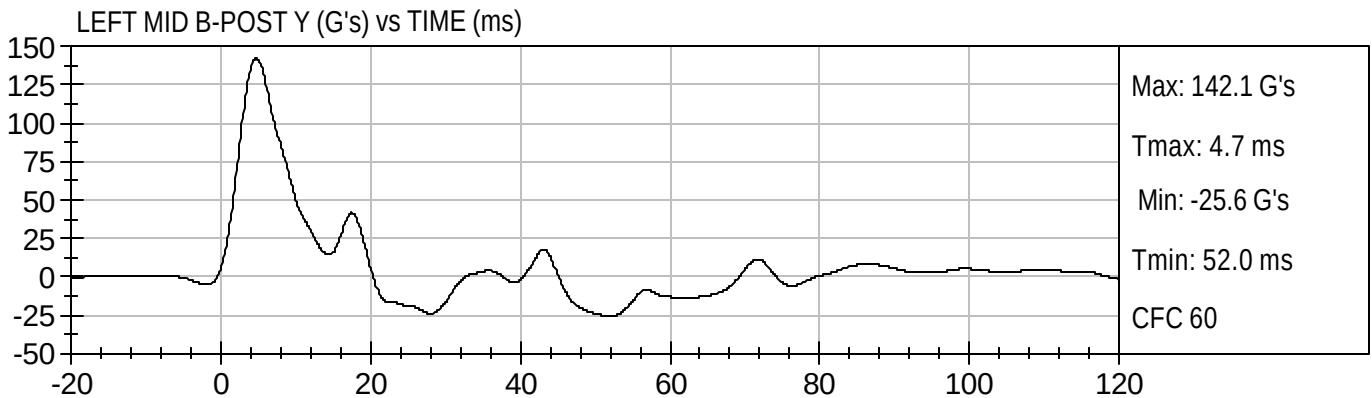
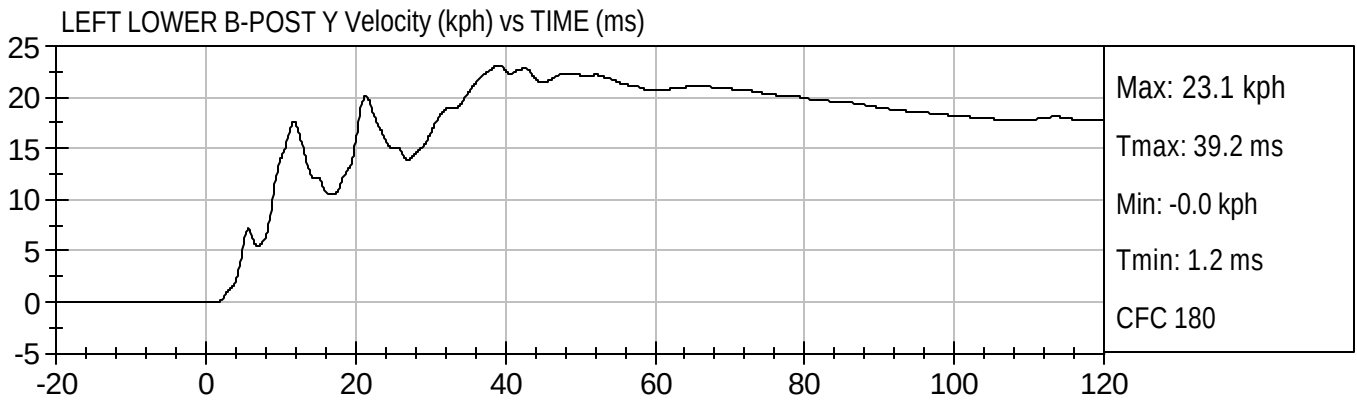
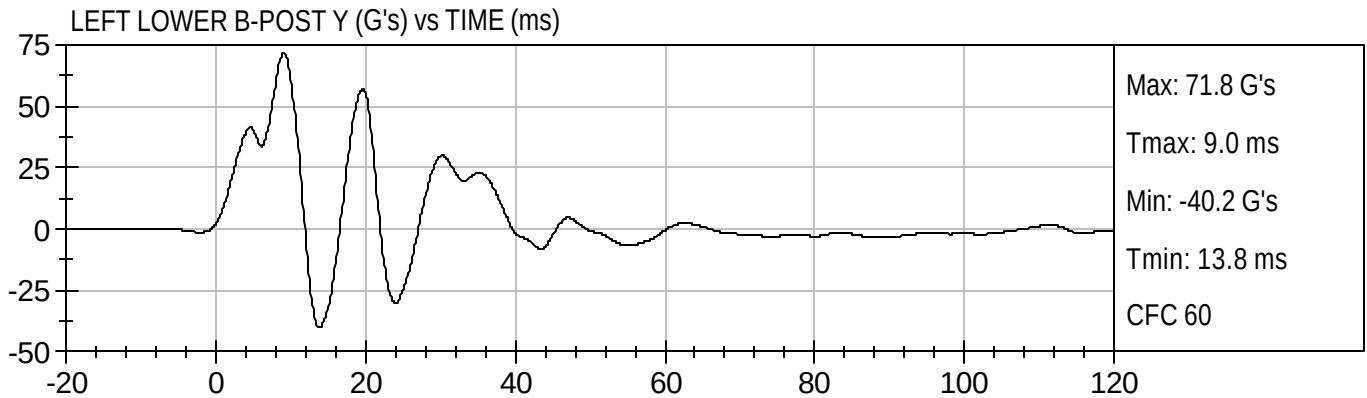


LEFT MID A-POST Y (G's) vs TIME (ms)



LEFT MID A-POST Y Velocity (kph) vs TIME (ms)

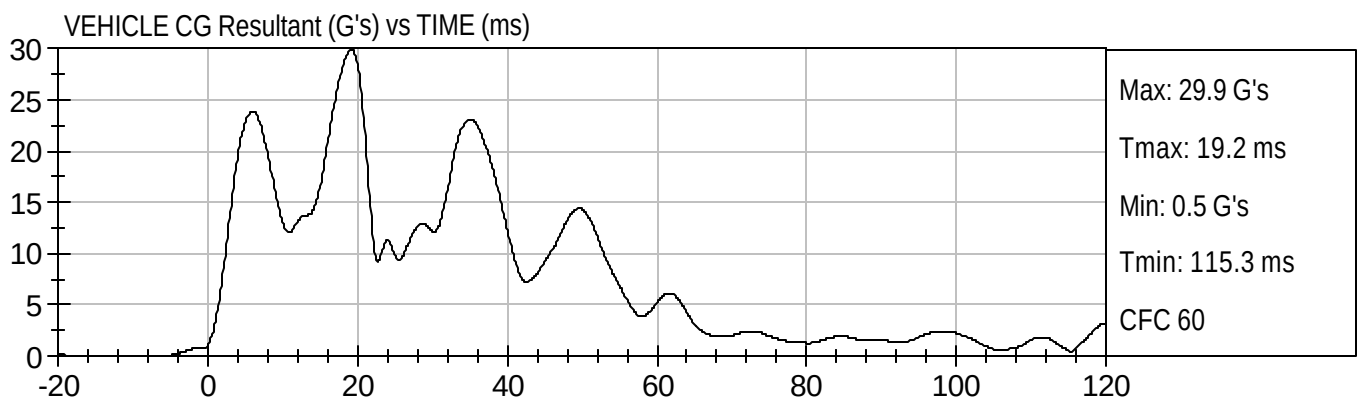
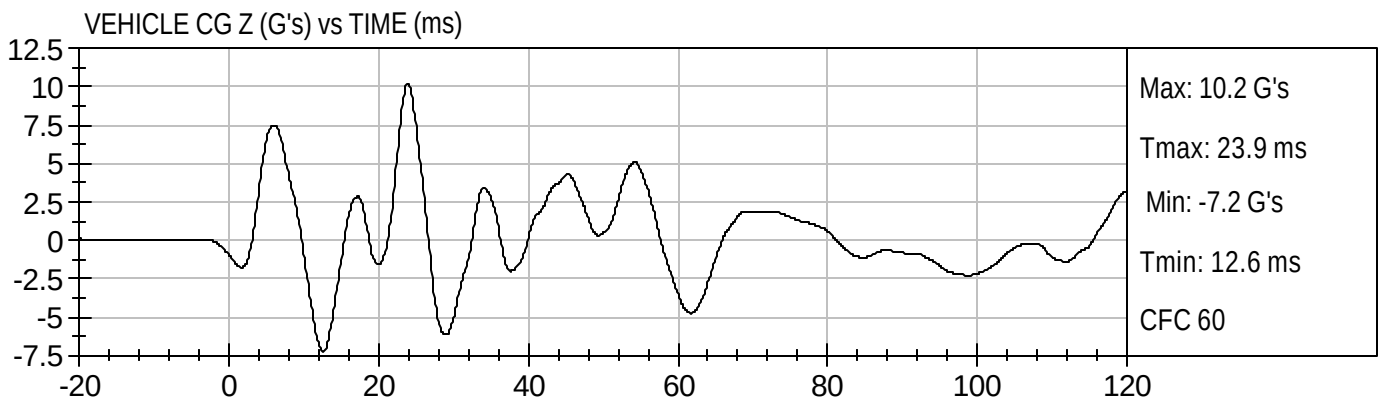
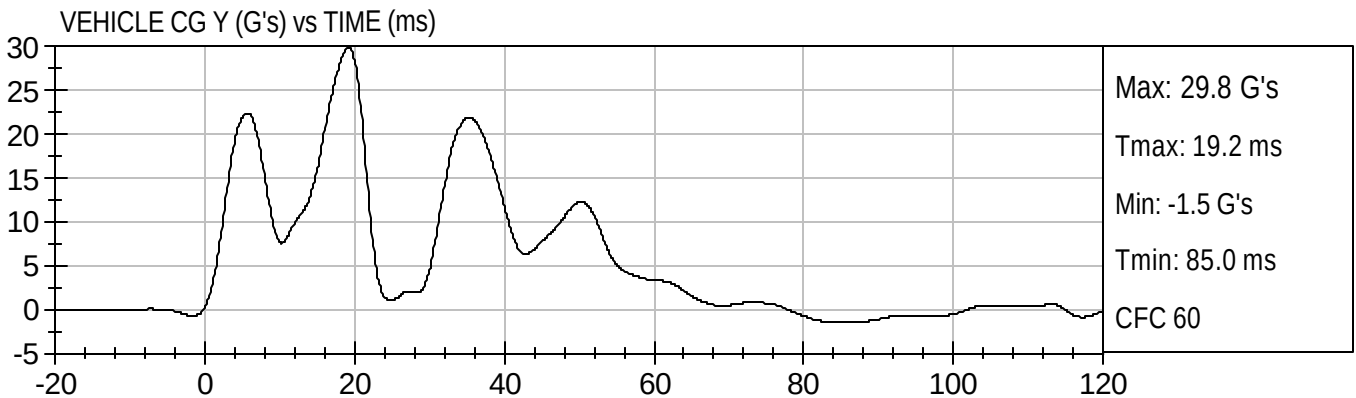
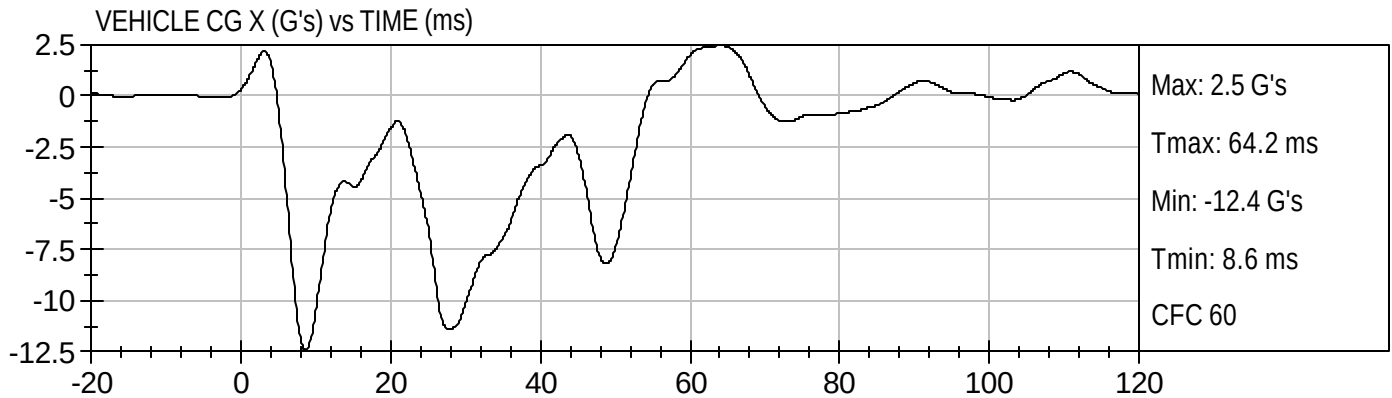


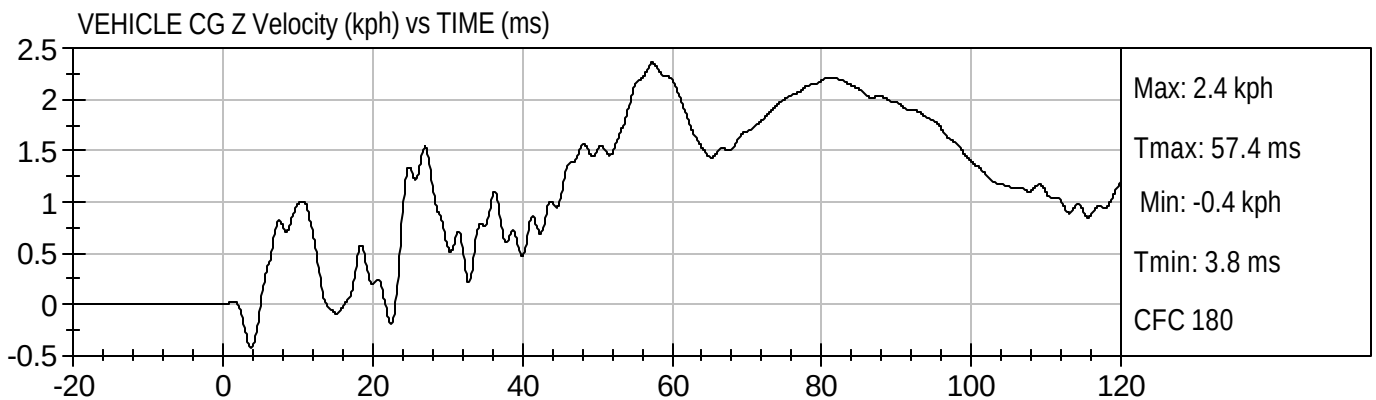
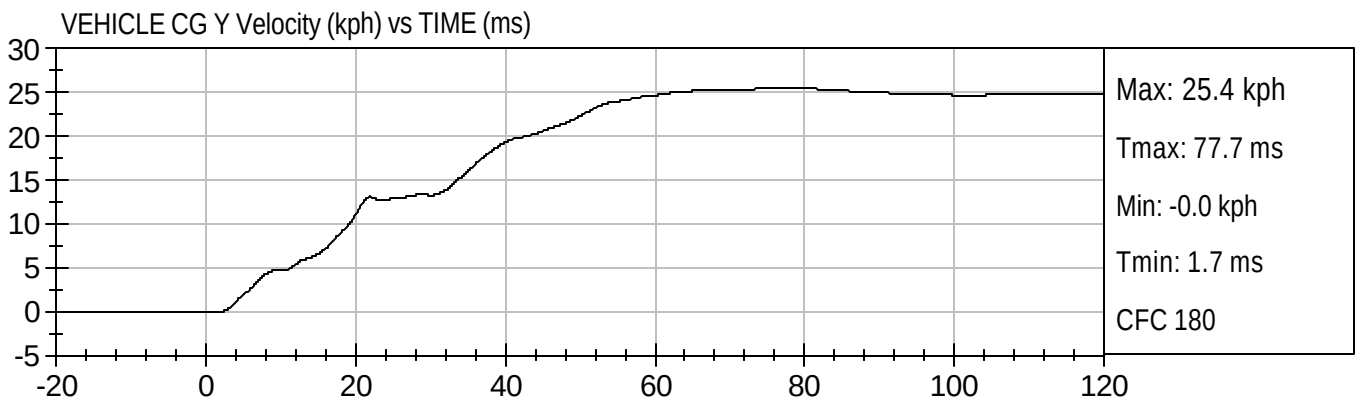
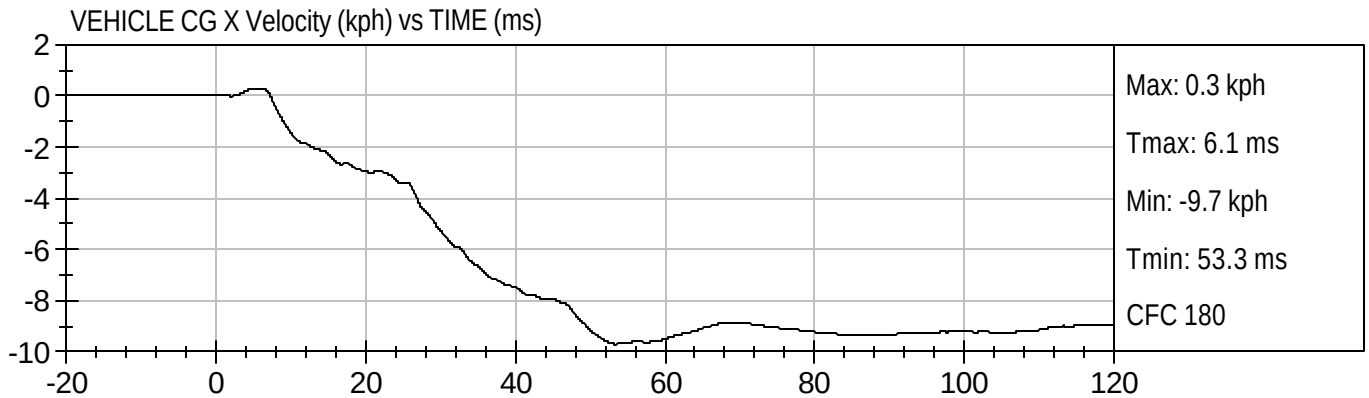




90 DEGREE INDICANT SIDE IMPACT
2003 TOYOTA COROLLA 4 DOOR (C25106)

Test Date: 3/06/02
Speed: 38.5 mph (62.0 km/h)

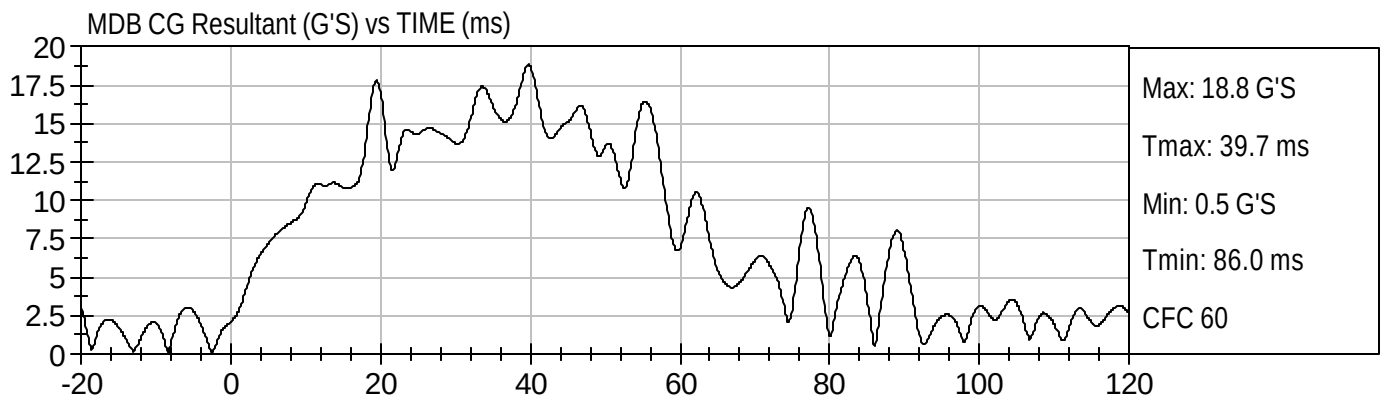
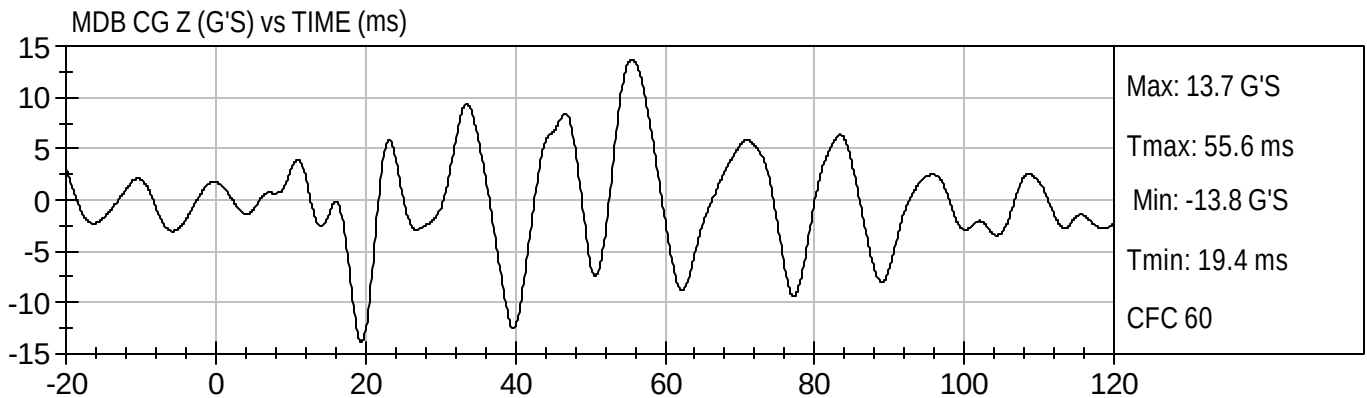
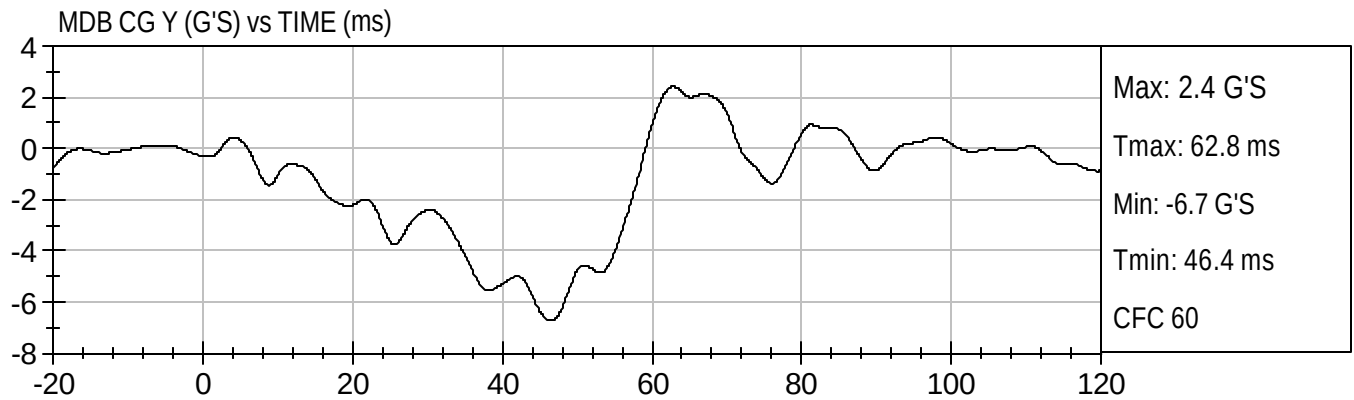
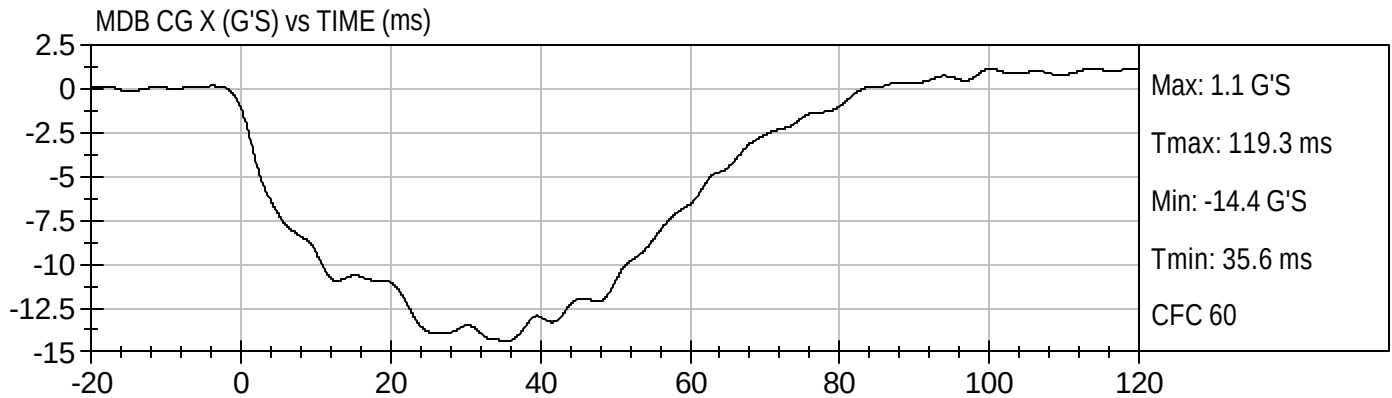






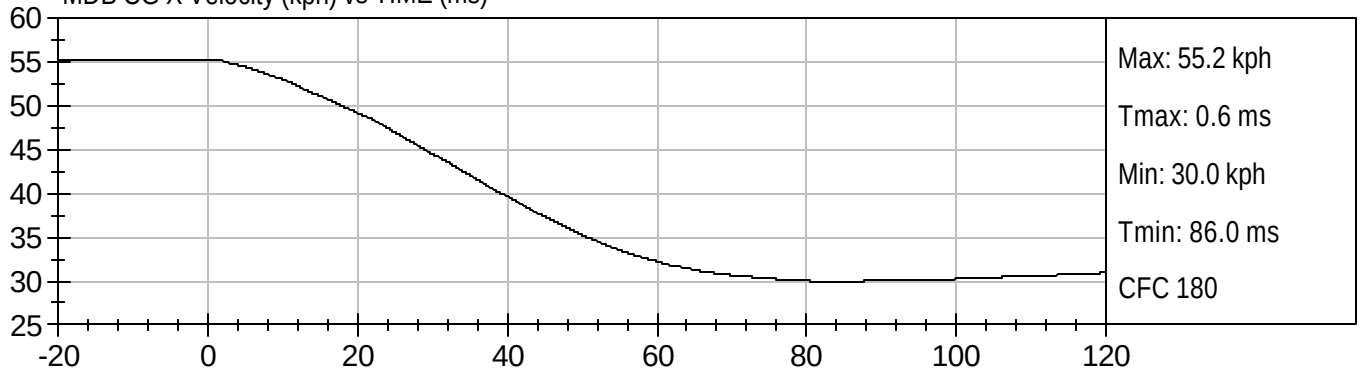
90 DEGREE INDICANT SIDE IMPACT
2003 TOYOTA COROLLA 4 DOOR (C25106)

Test Date: 3/06/02
Speed: 38.5 mph (62.0 km/h)

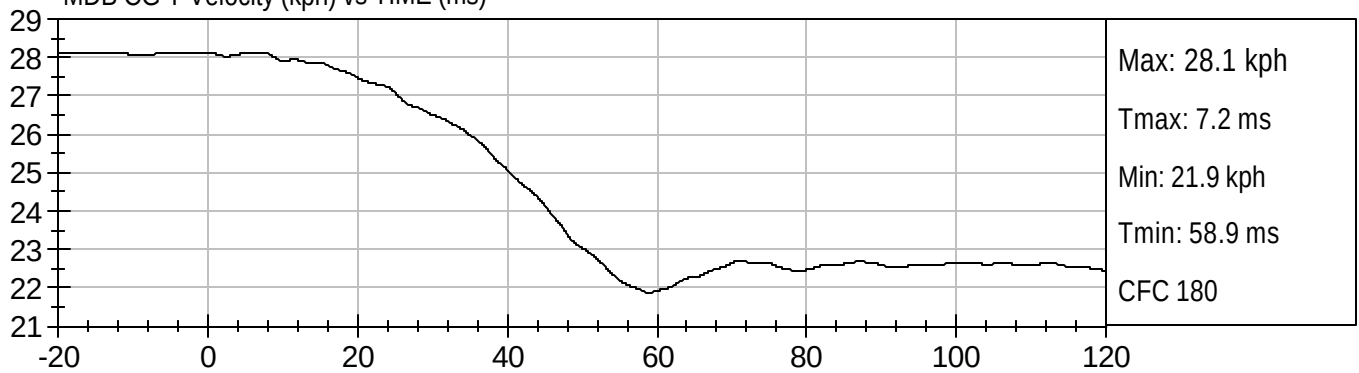




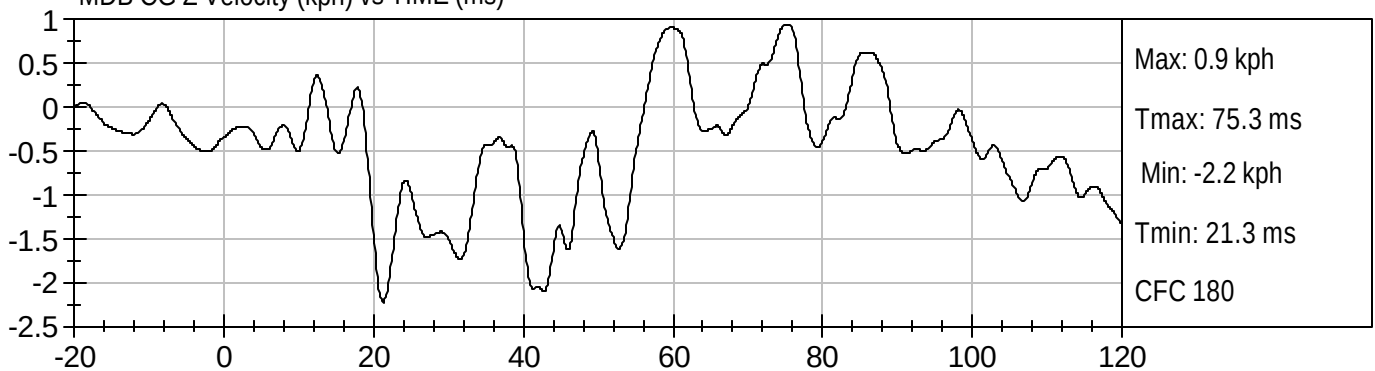
MDB CG X Velocity (kph) vs TIME (ms)

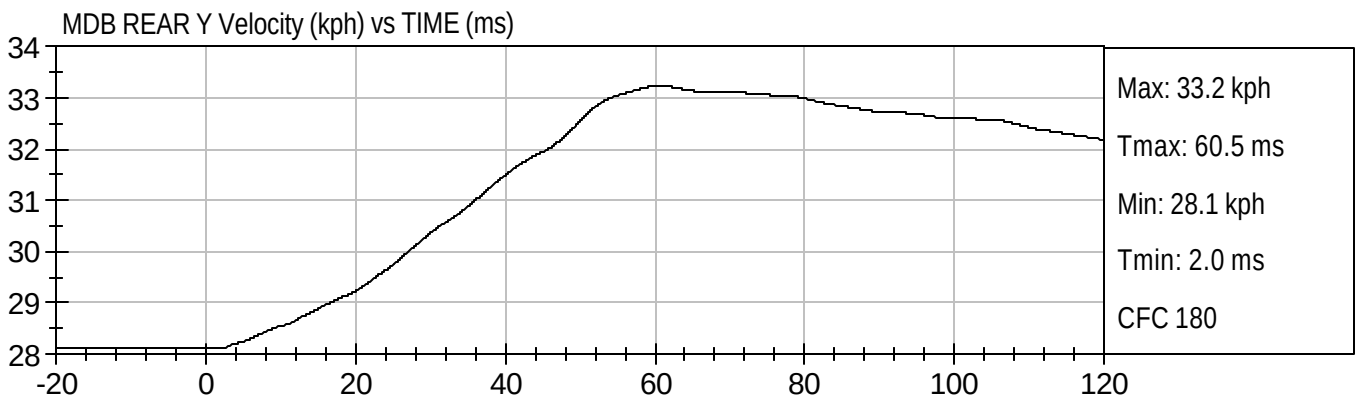
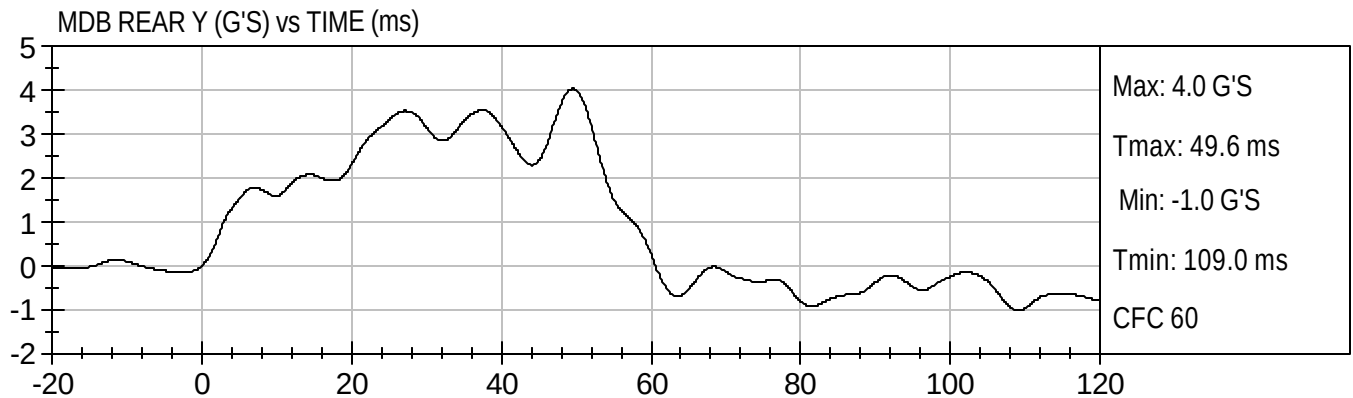
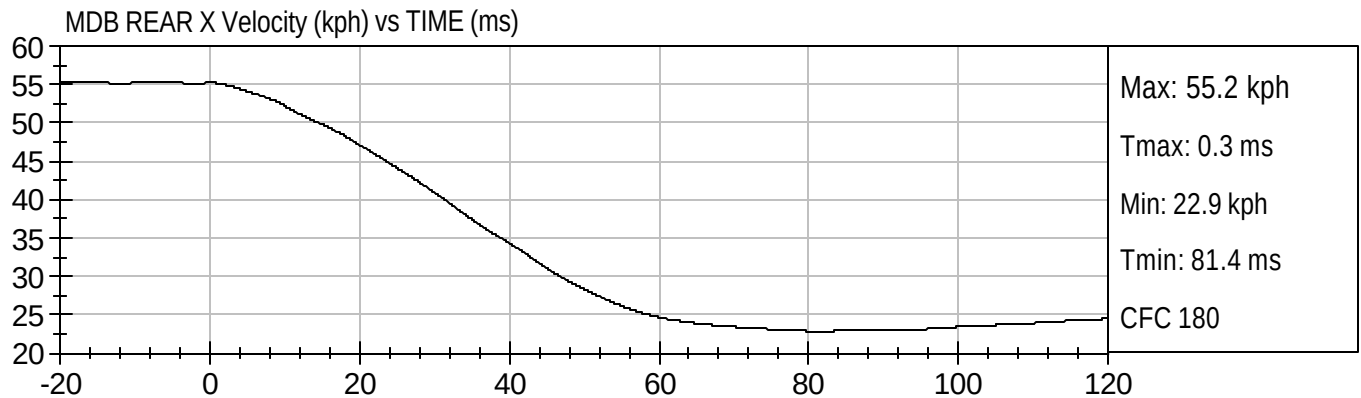
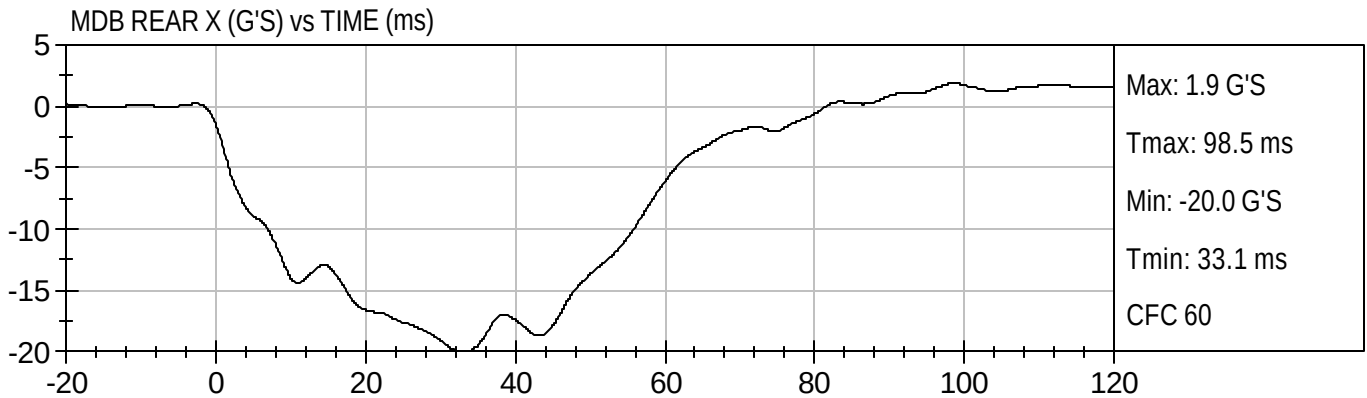


MDB CG Y Velocity (kph) vs TIME (ms)



MDB CG Z Velocity (kph) vs TIME (ms)

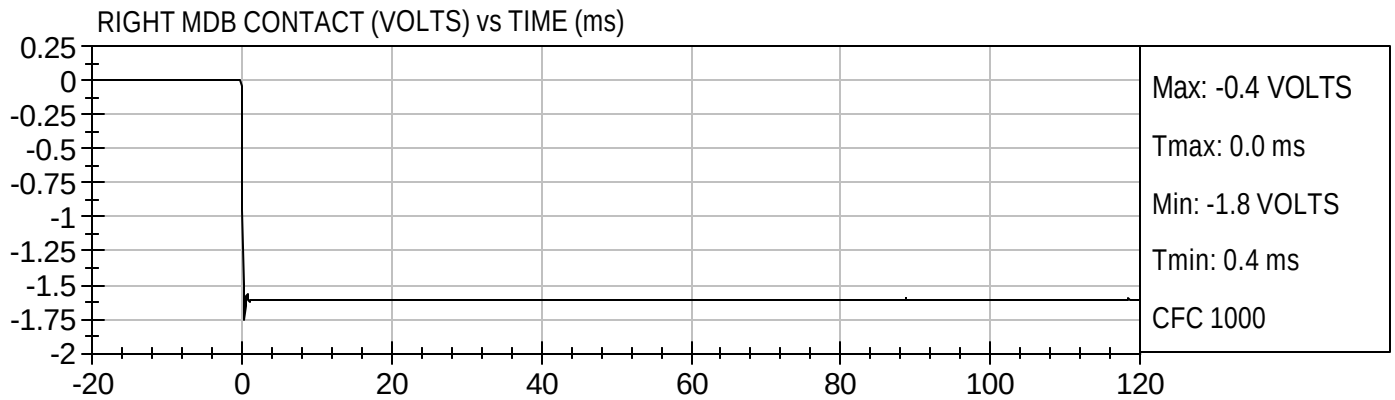
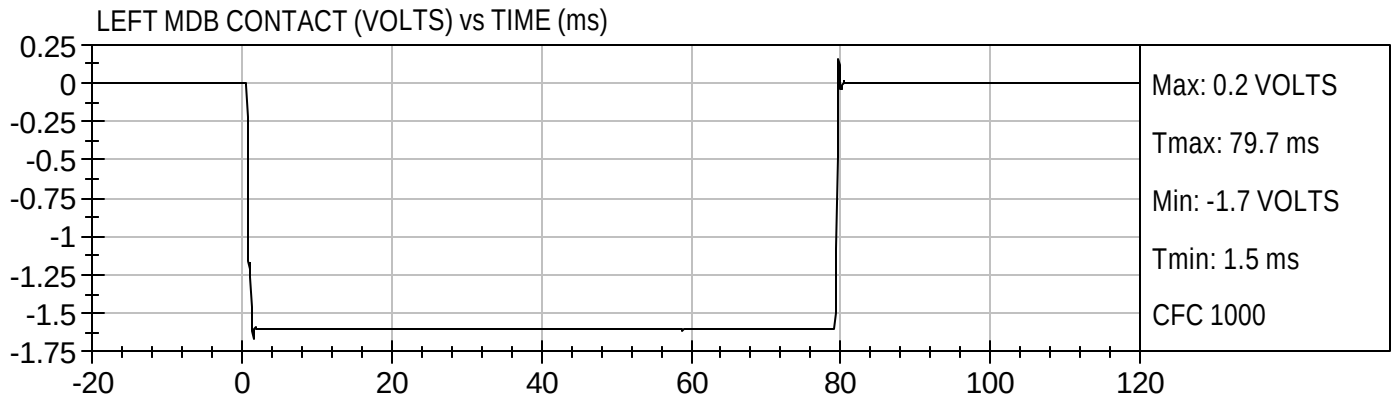






90 DEGREE INDICANT SIDE IMPACT
2003 TOYOTA COROLLA 4 DOOR (C25106)

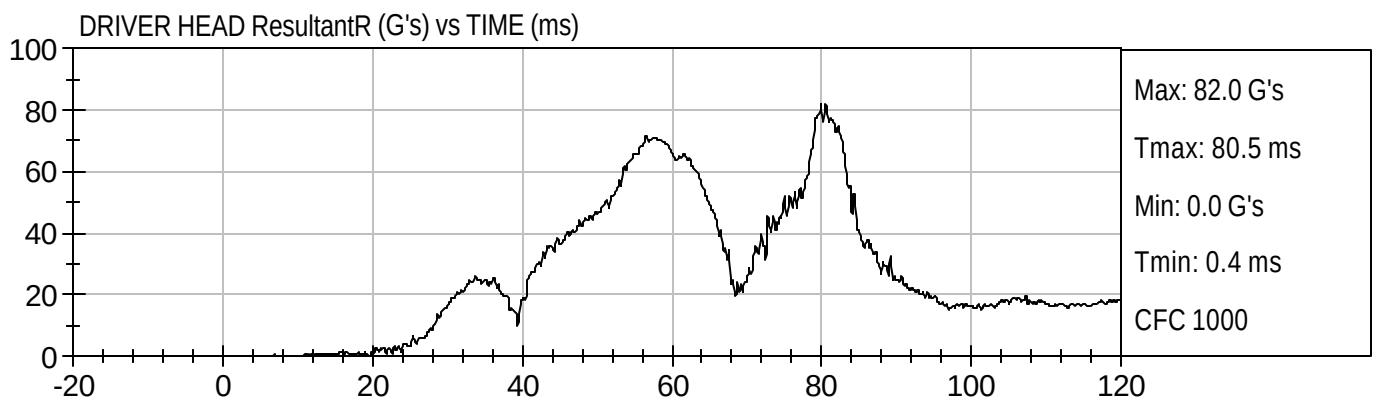
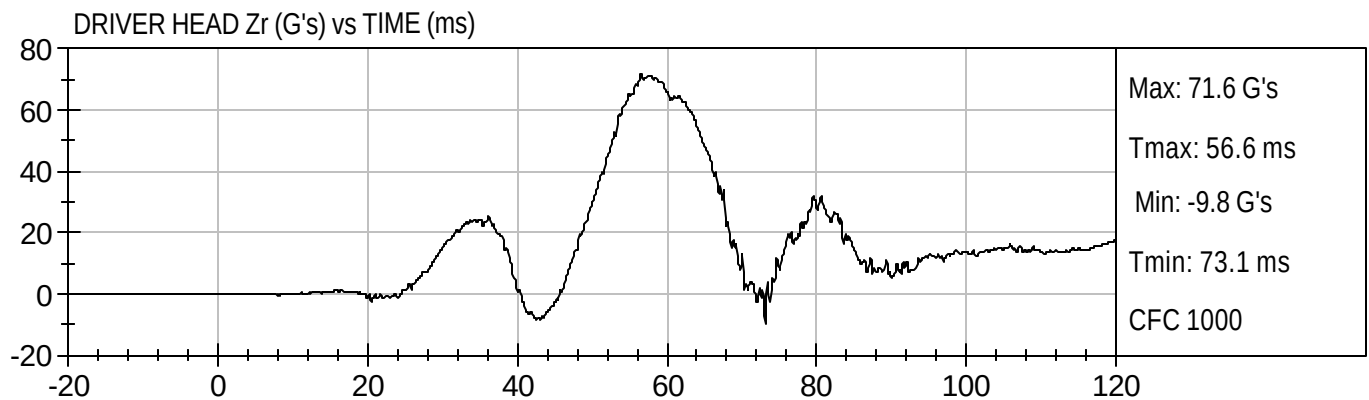
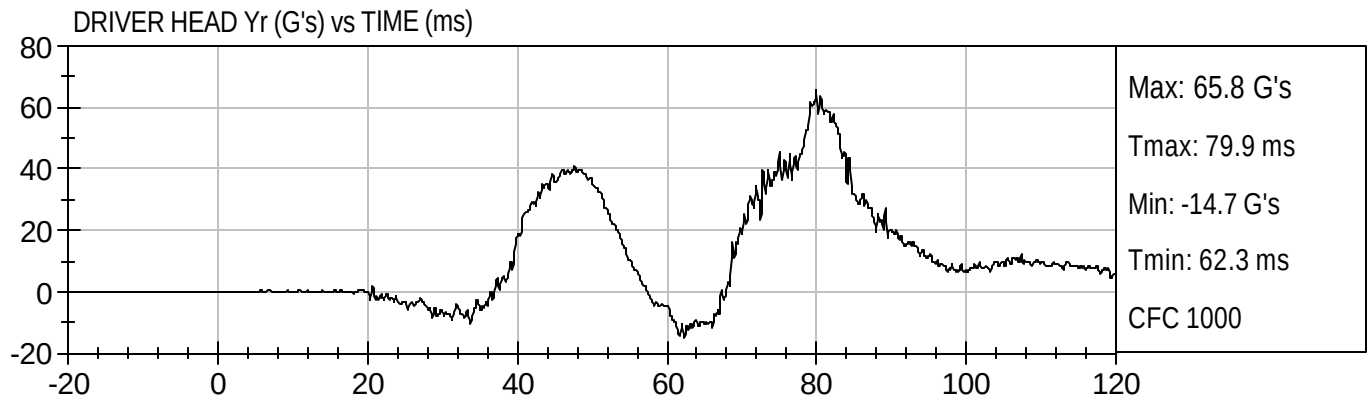
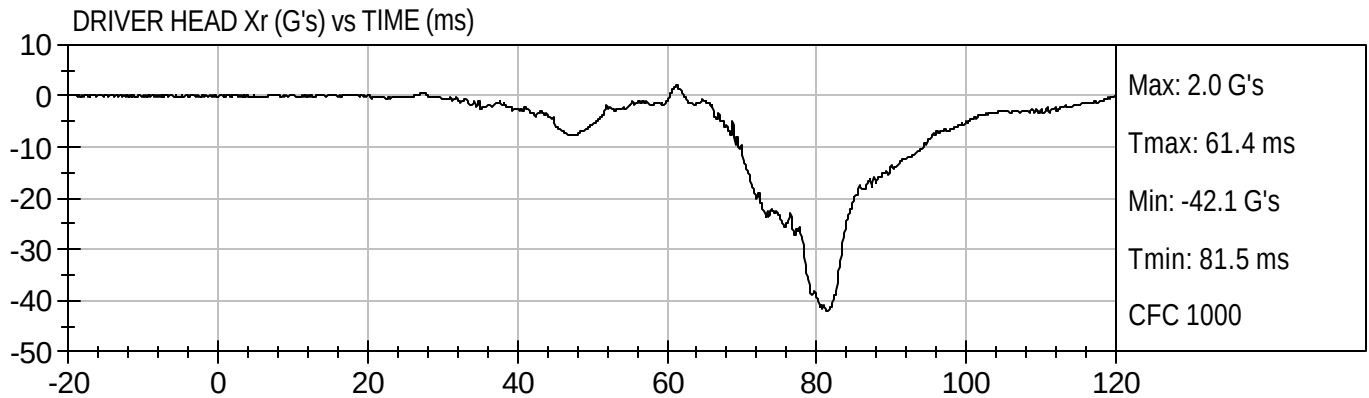
Test Date: 3/06/02
Speed: 38.5 mph (62.0 km/h)

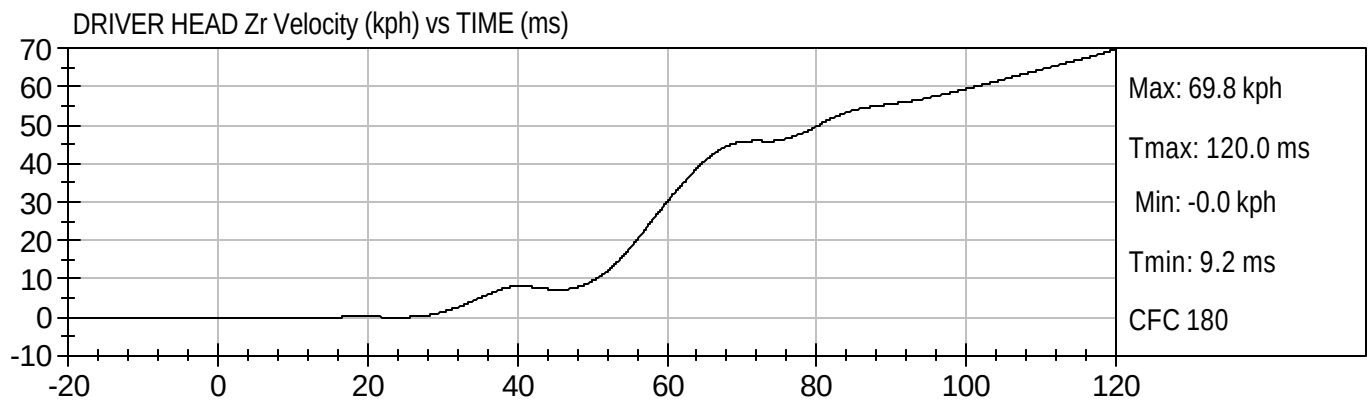
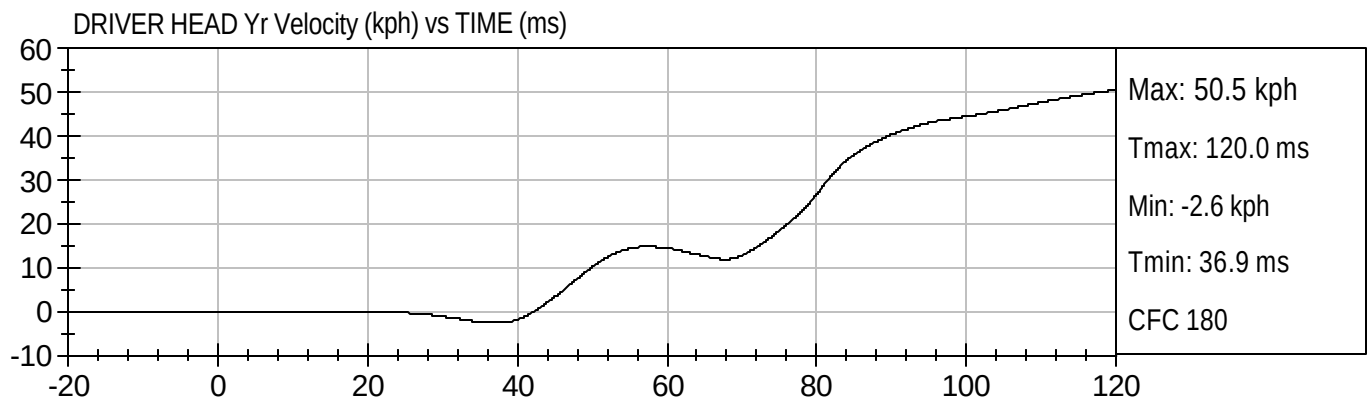
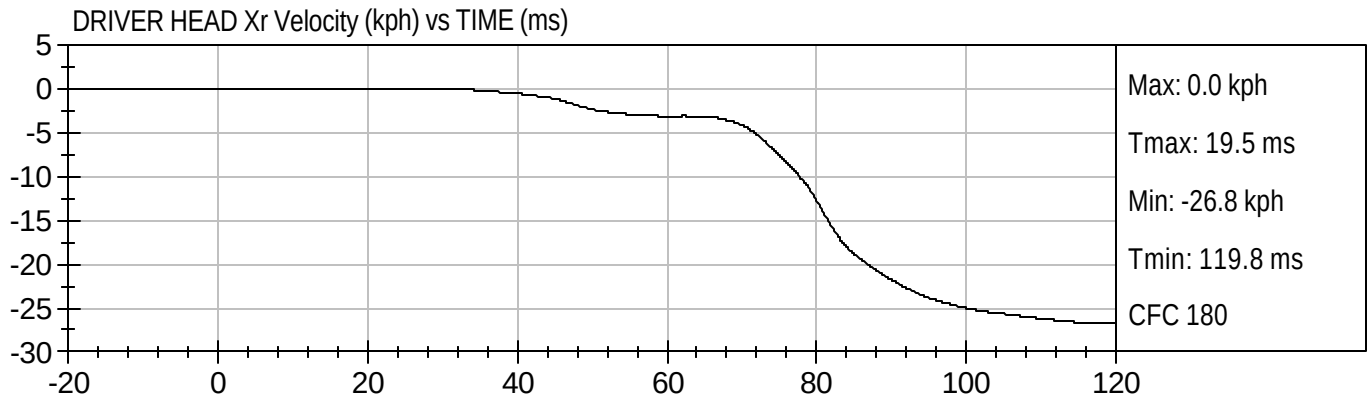




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2003 TOYOTA COROLLA 4 DOOR (C25106)

Test Date: 3/06/02
Speed: 38.5 mph (62.0 km/h)

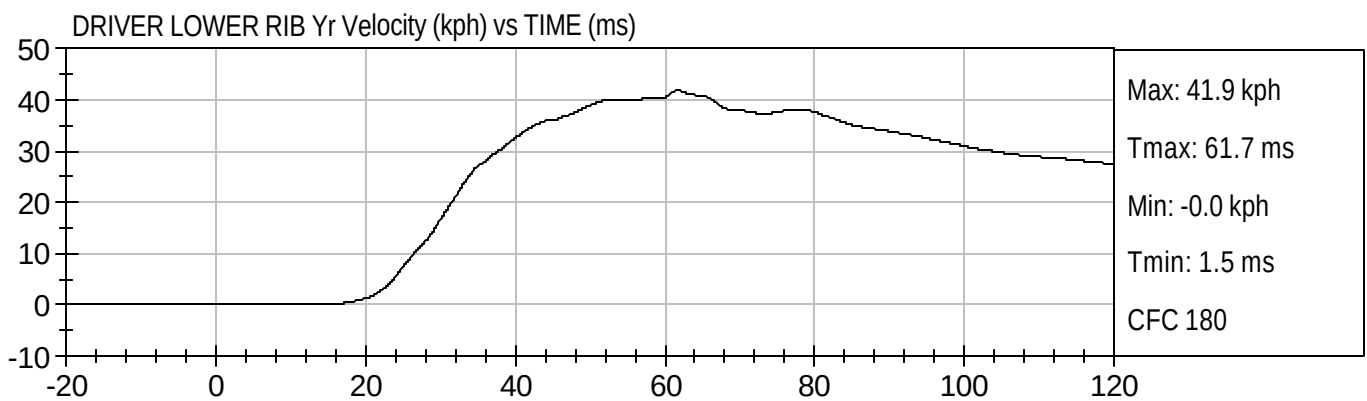
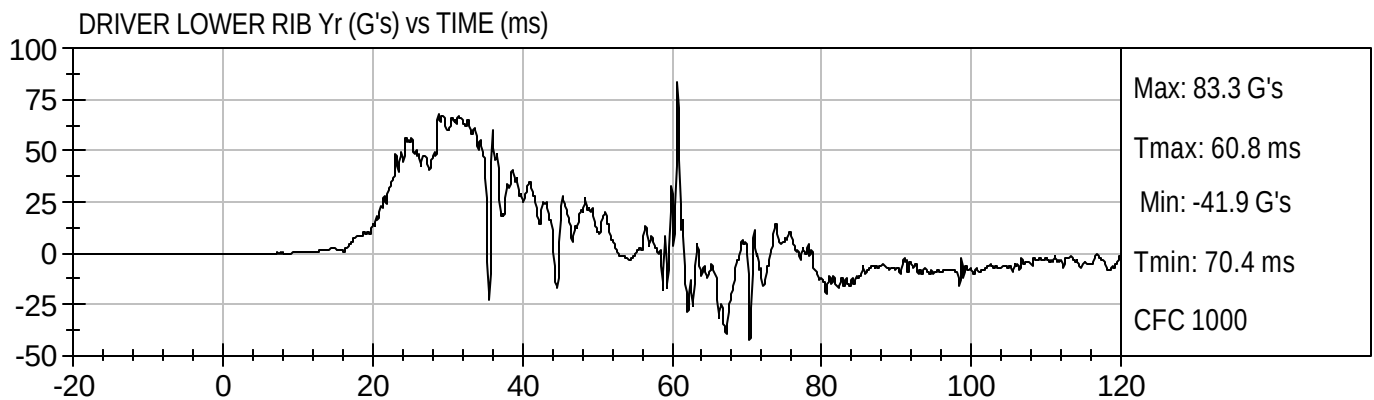
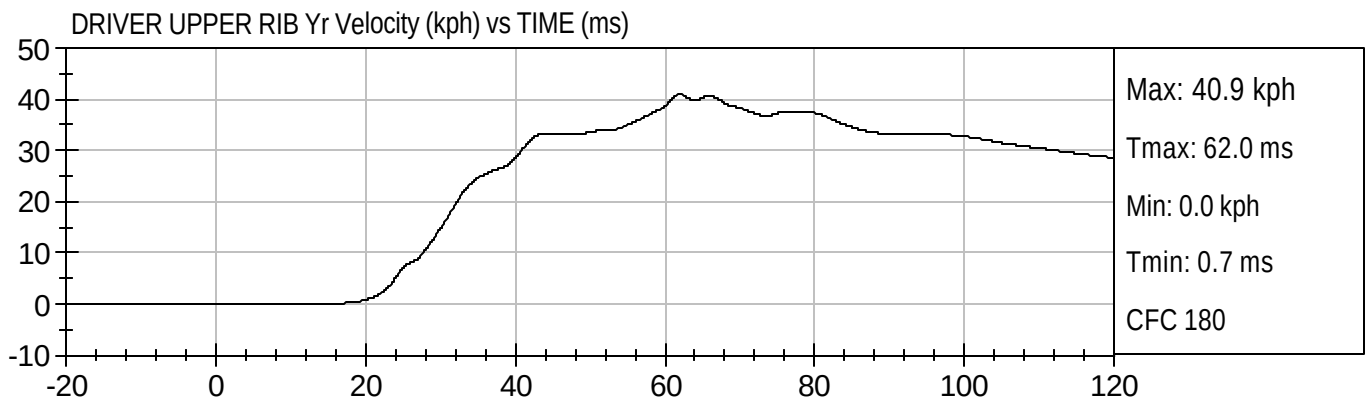
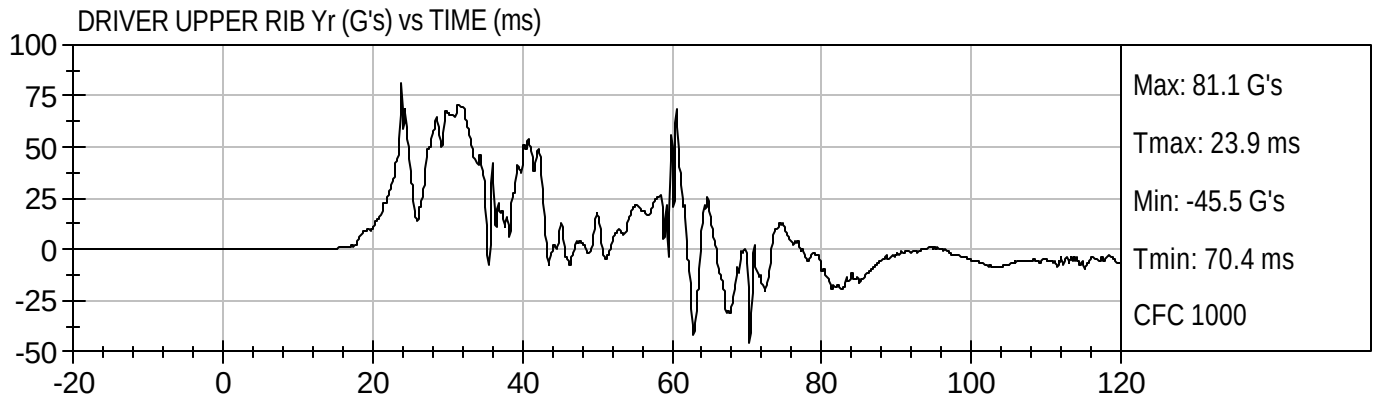


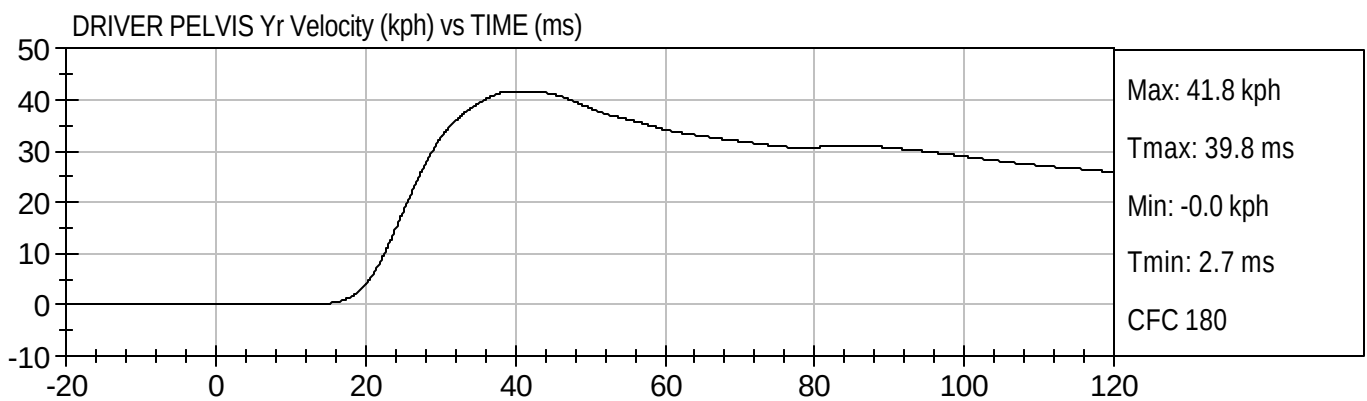
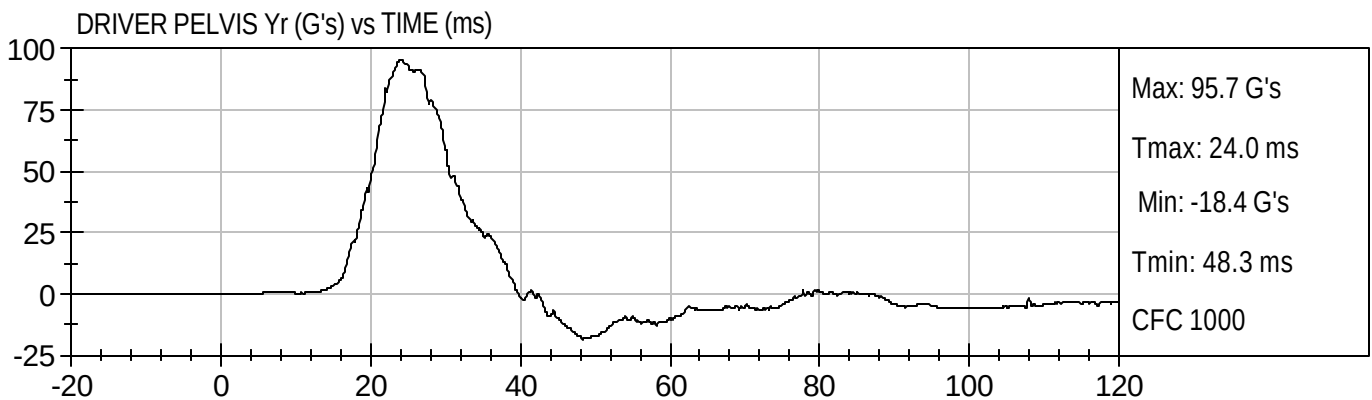
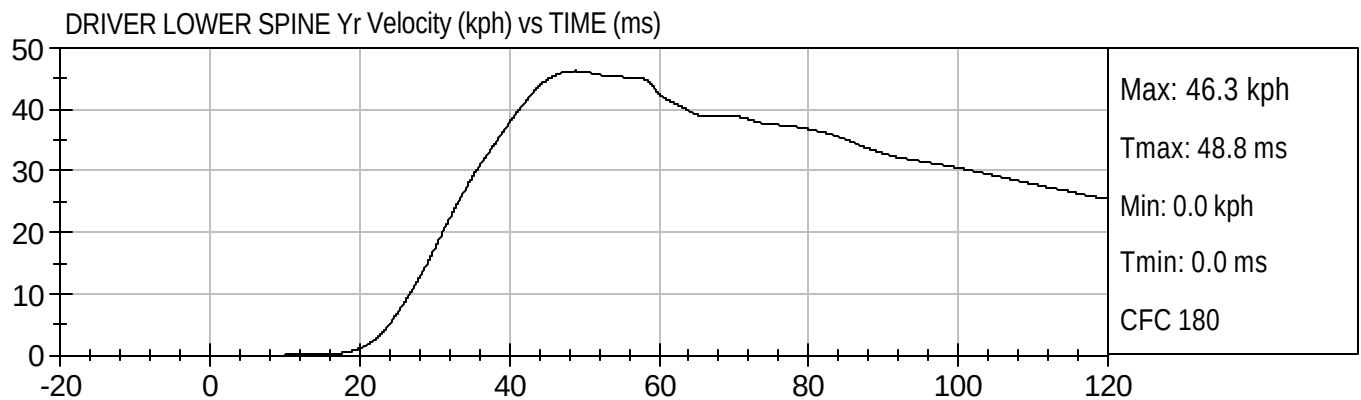
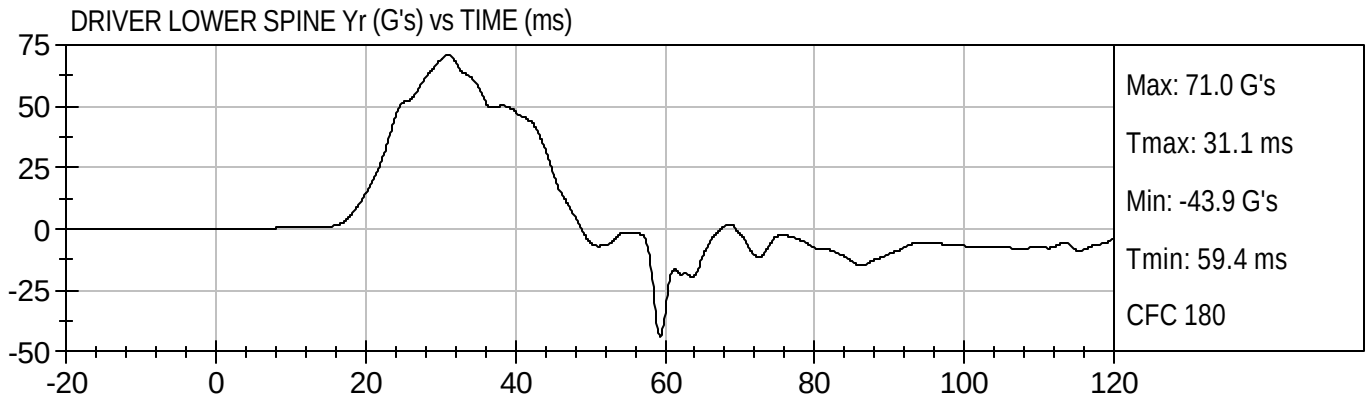




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Test Date: 3/06/02
Speed: 38.5 mph (62.0 km/h)

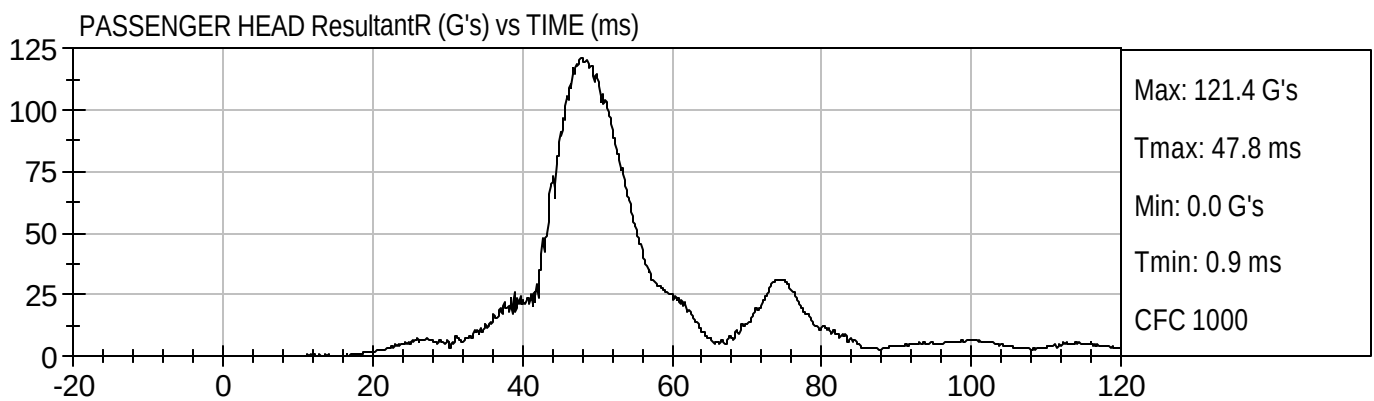
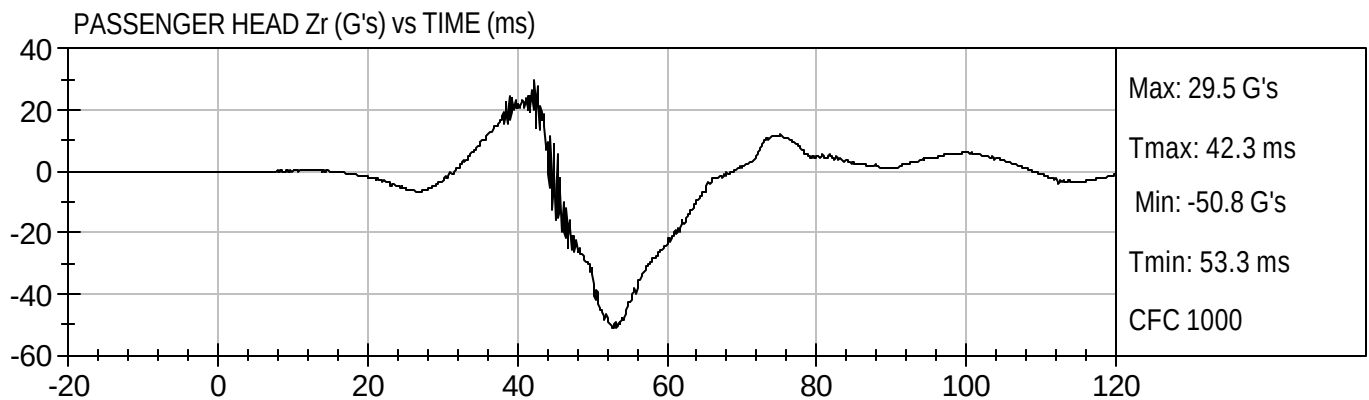
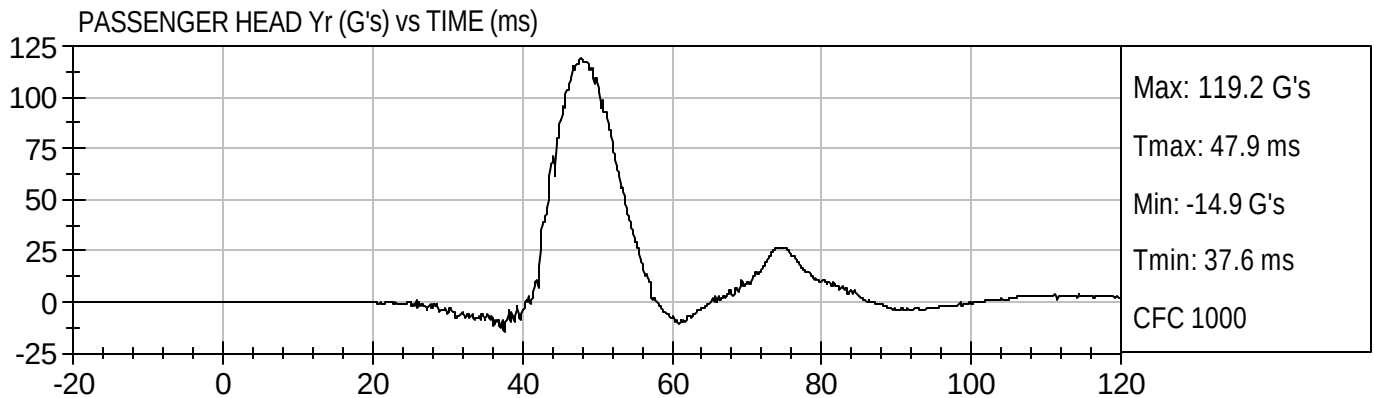
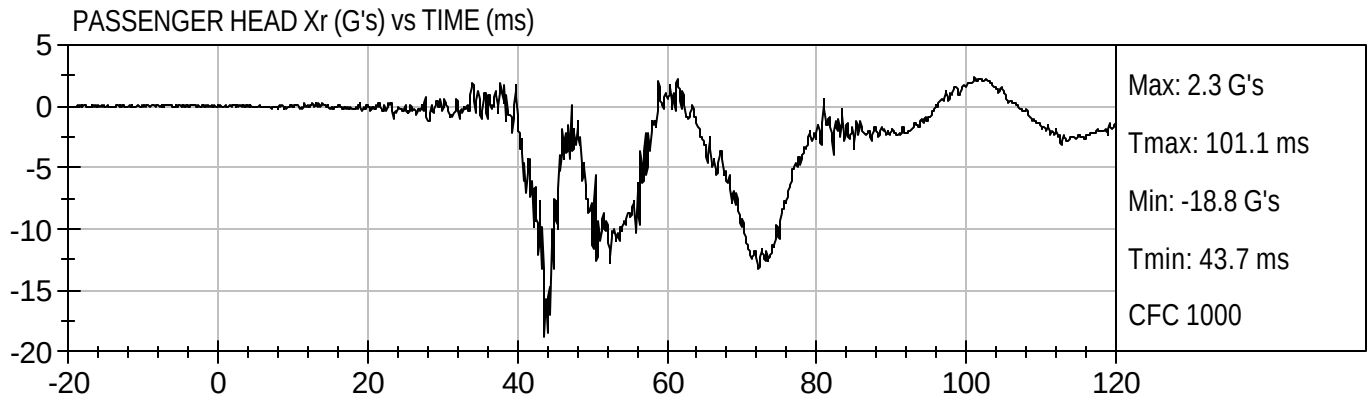


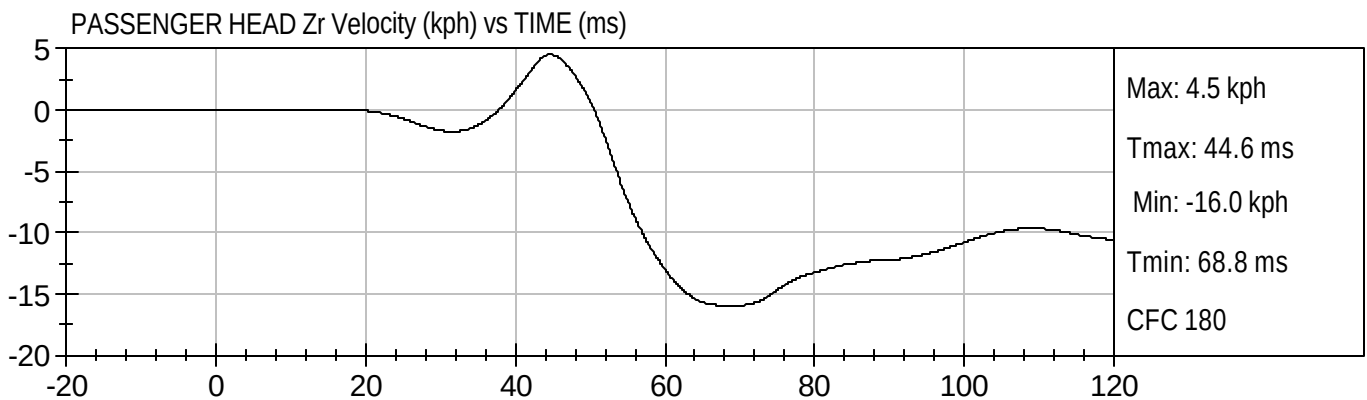
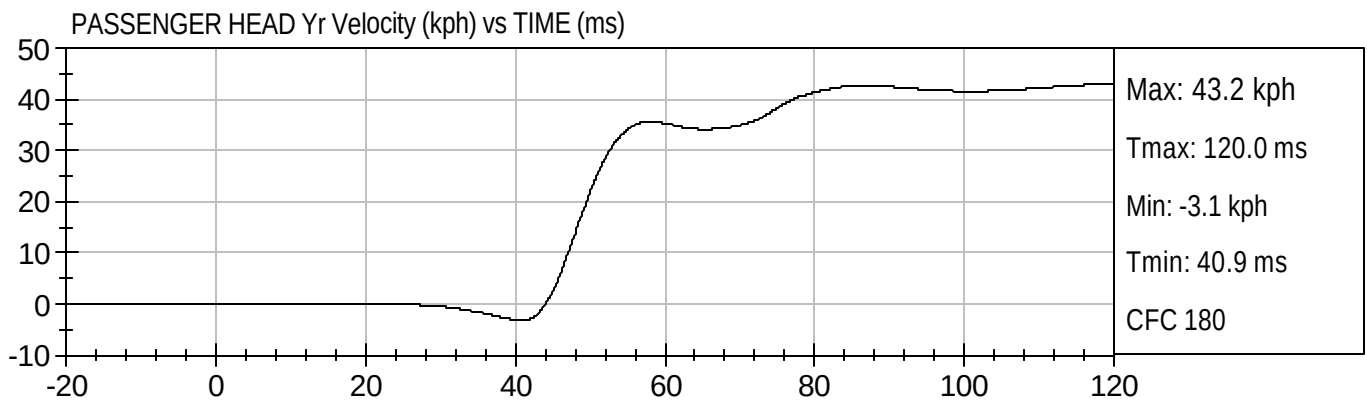
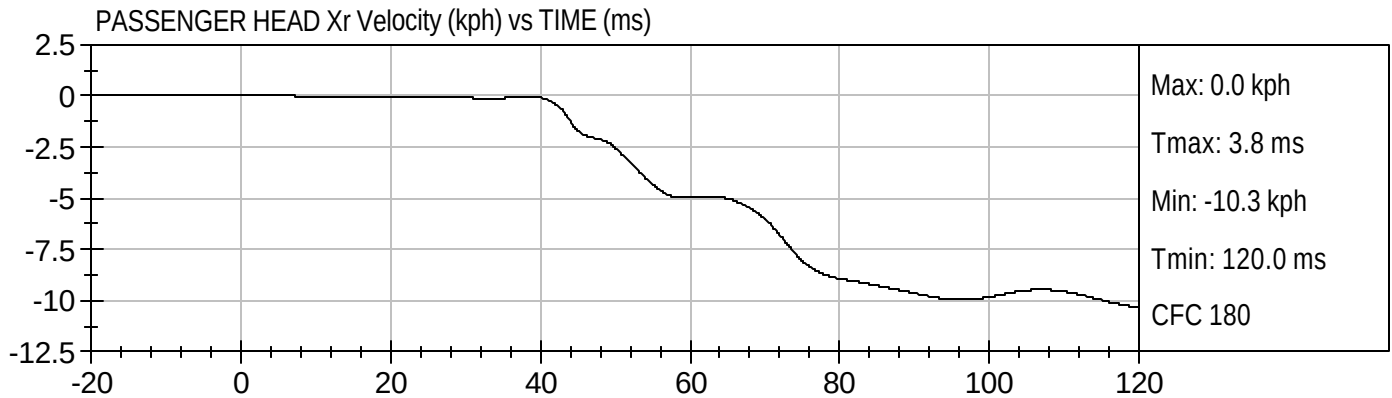




90 DEGREE INDICANT SIDE IMPACT
2003 TOYOTA COROLLA 4 DOOR (C25106)

Test Date: 3/06/02
Speed: 38.5 mph (62.0 km/h)

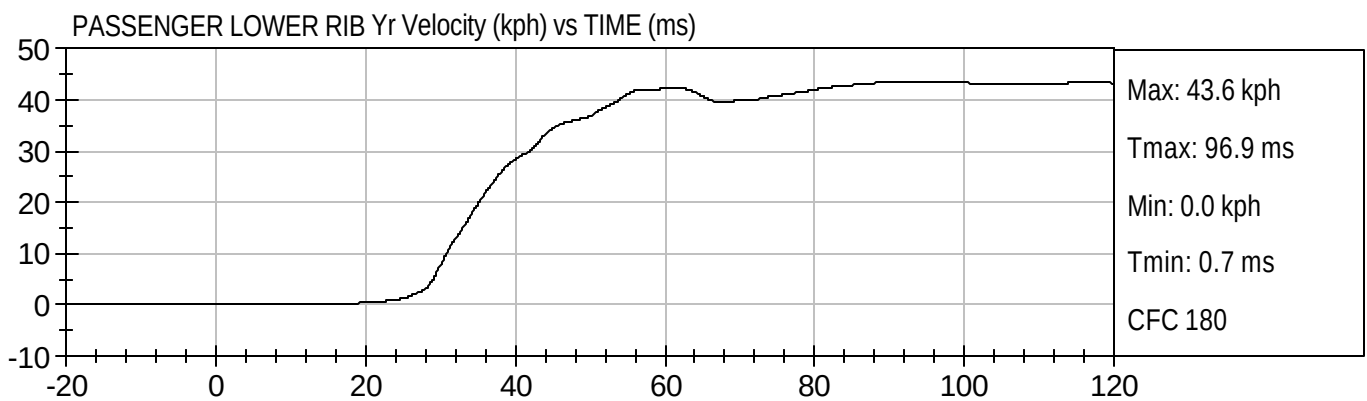
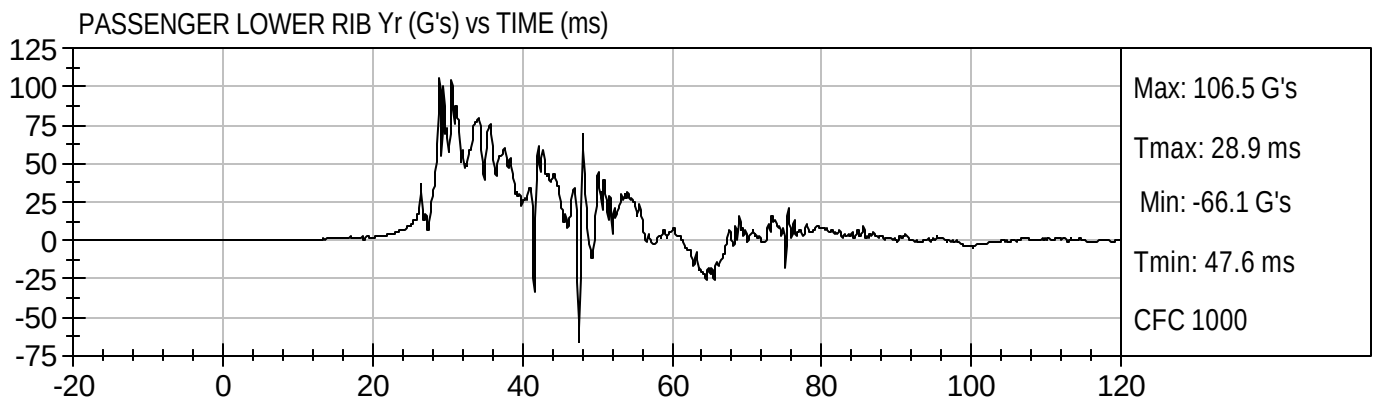
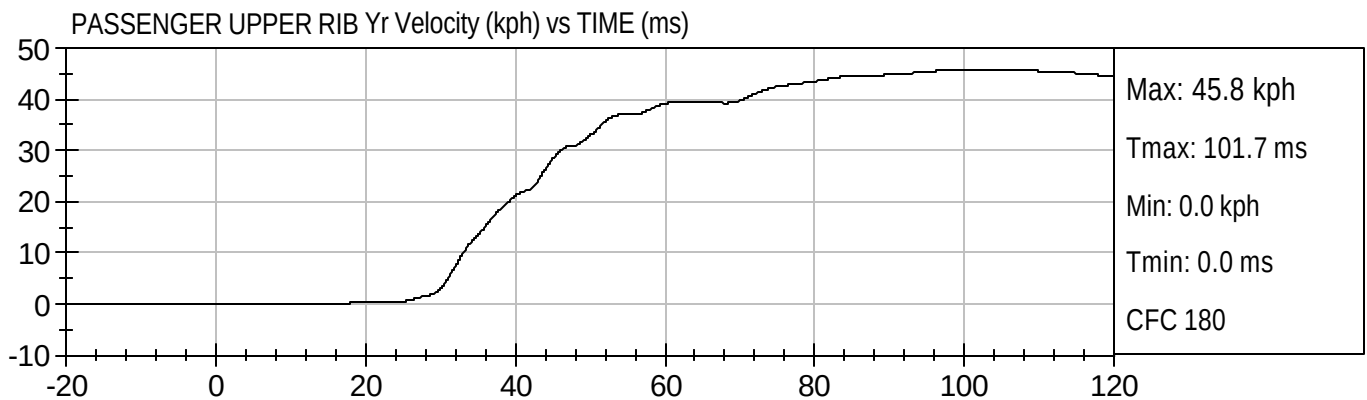
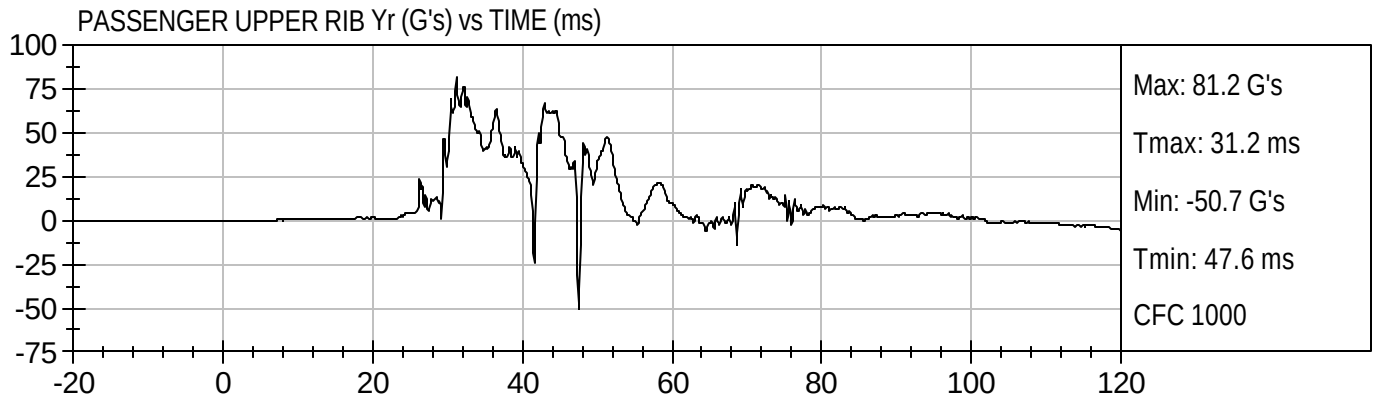


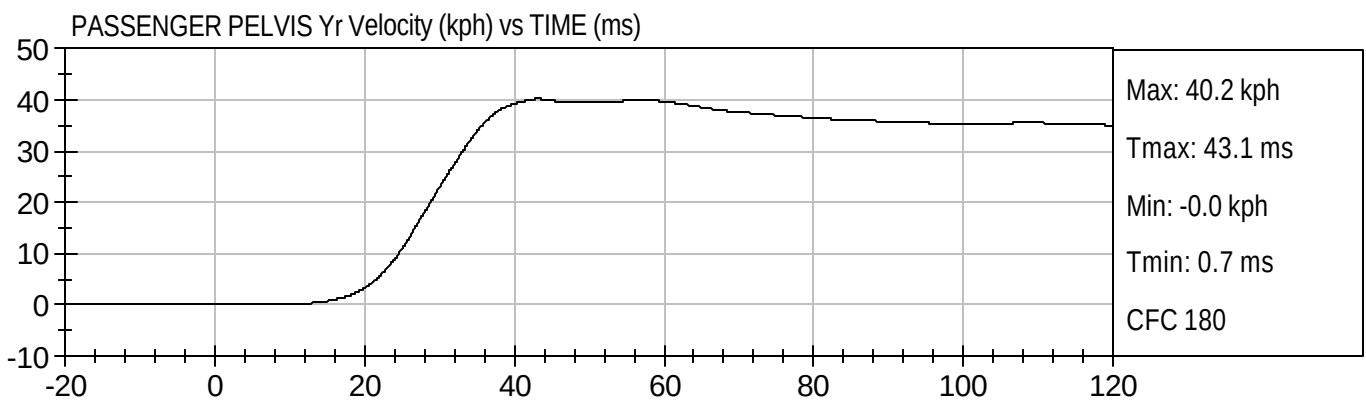
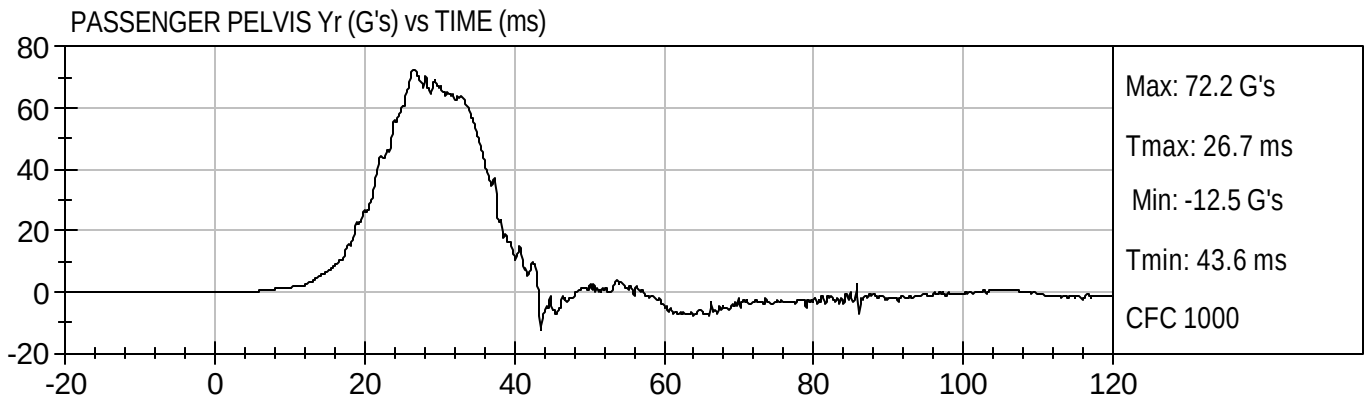
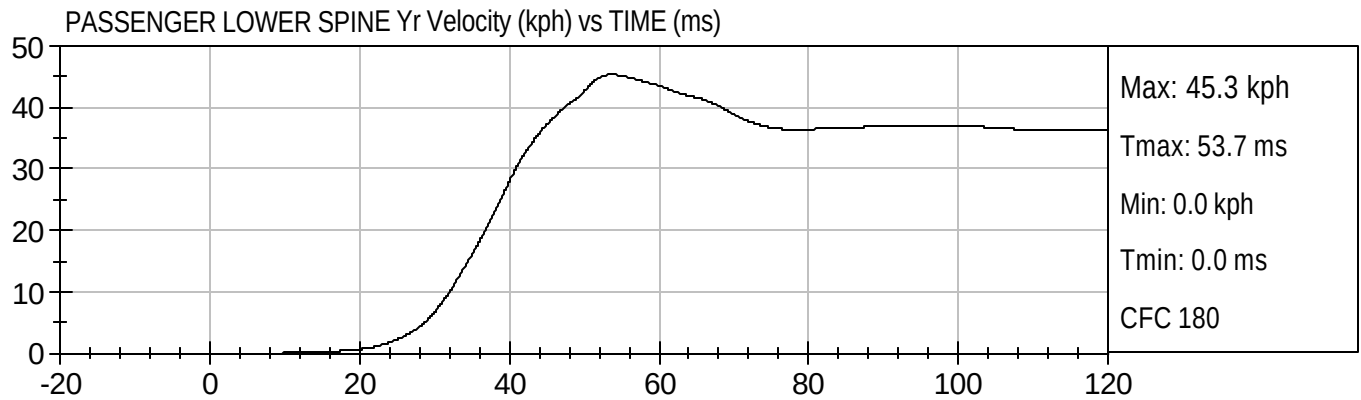
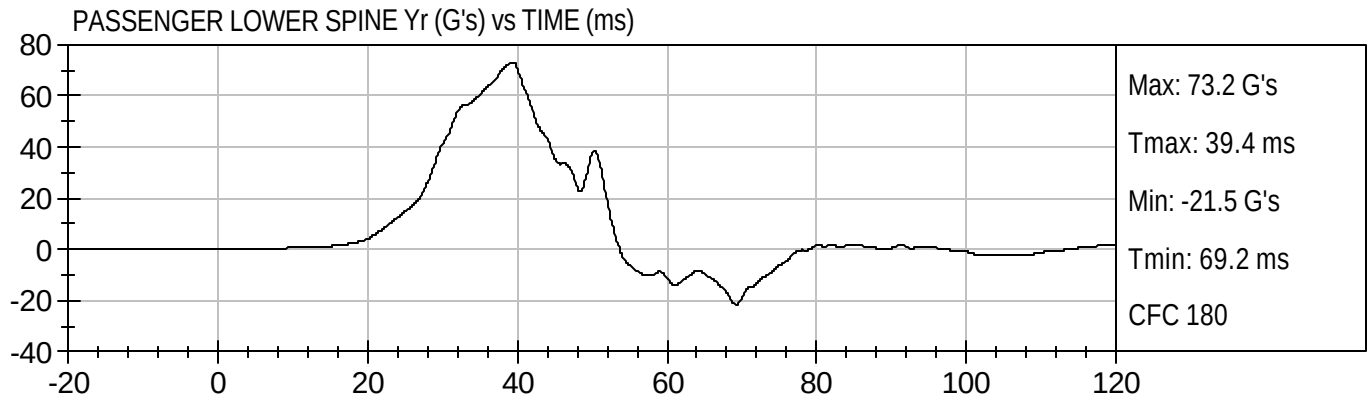


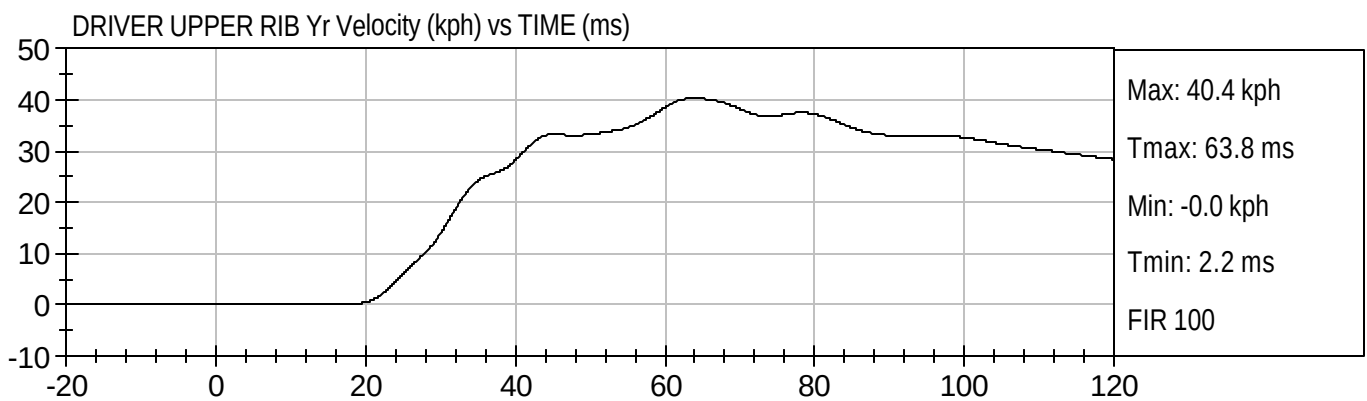
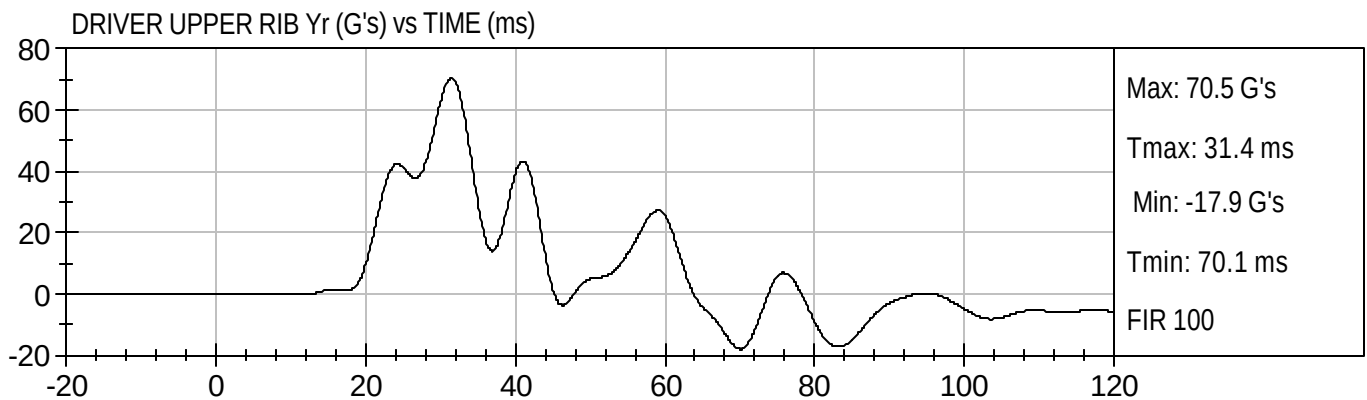
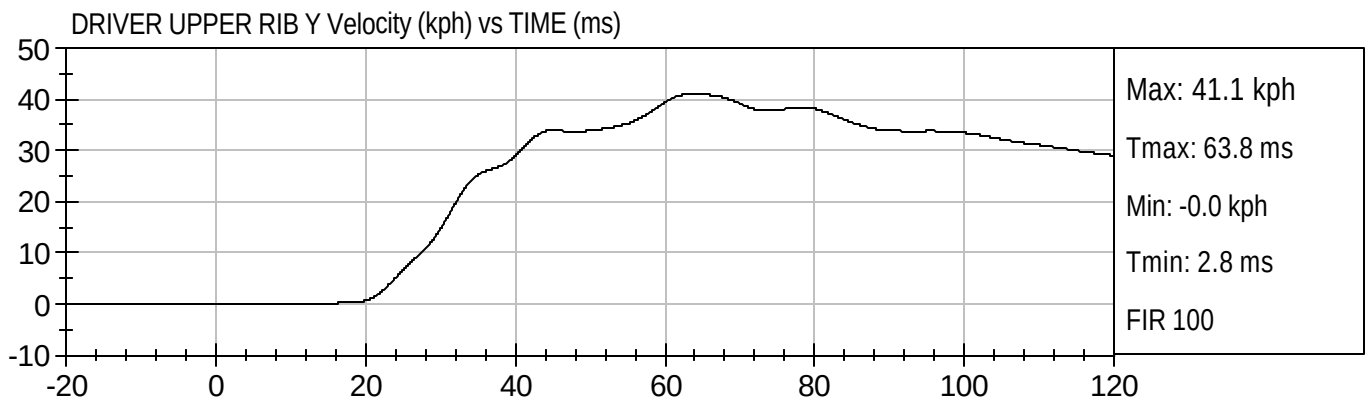
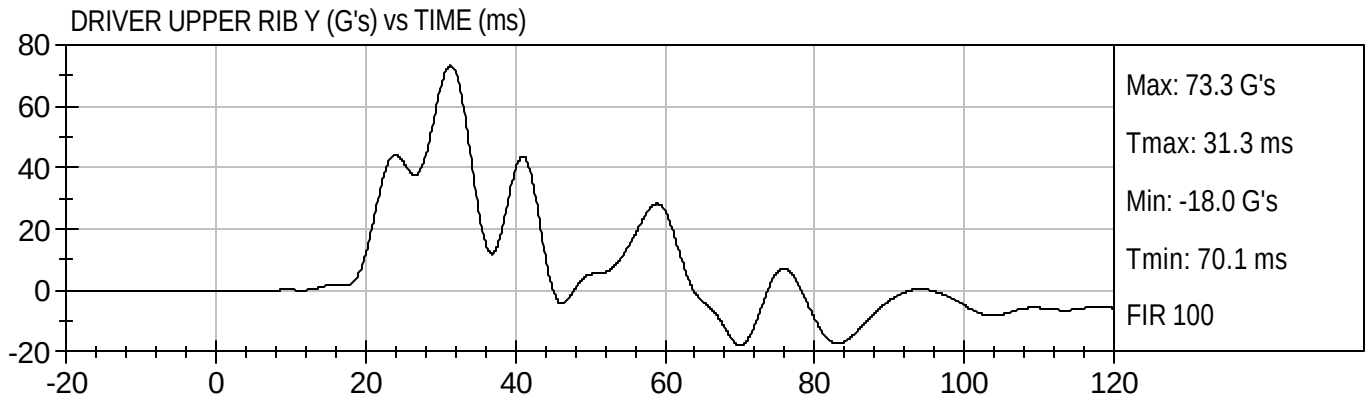


90 DEGREE INDICANT SIDE IMPACT
2003 TOYOTA COROLLA 4 DOOR (C25106)

Test Date: 3/06/02
Speed: 38.5 mph (62.0 km/h)



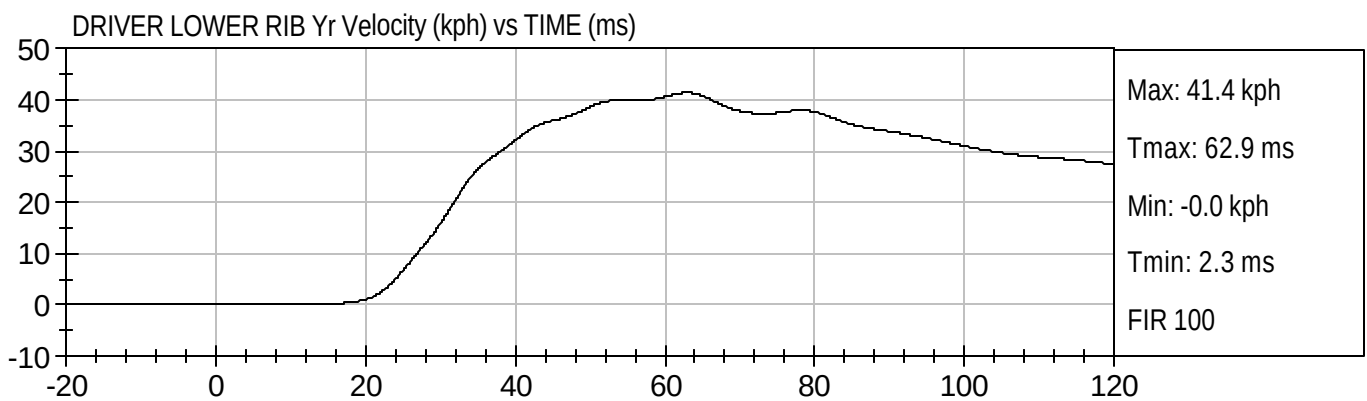
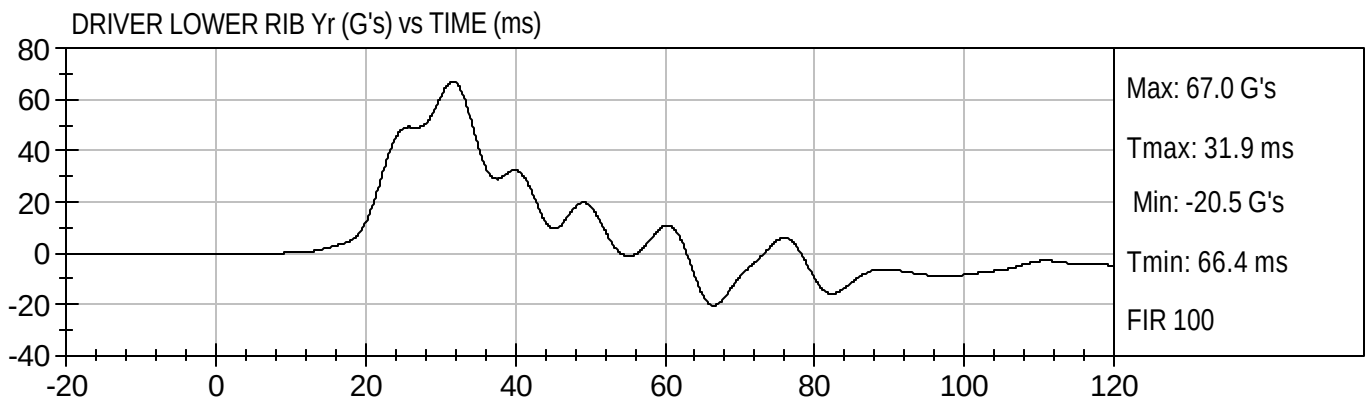
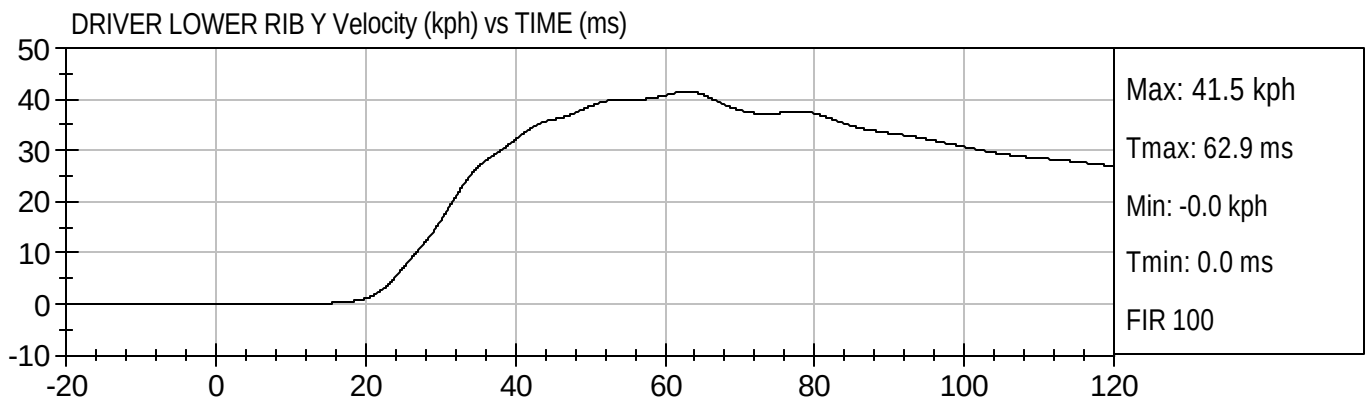
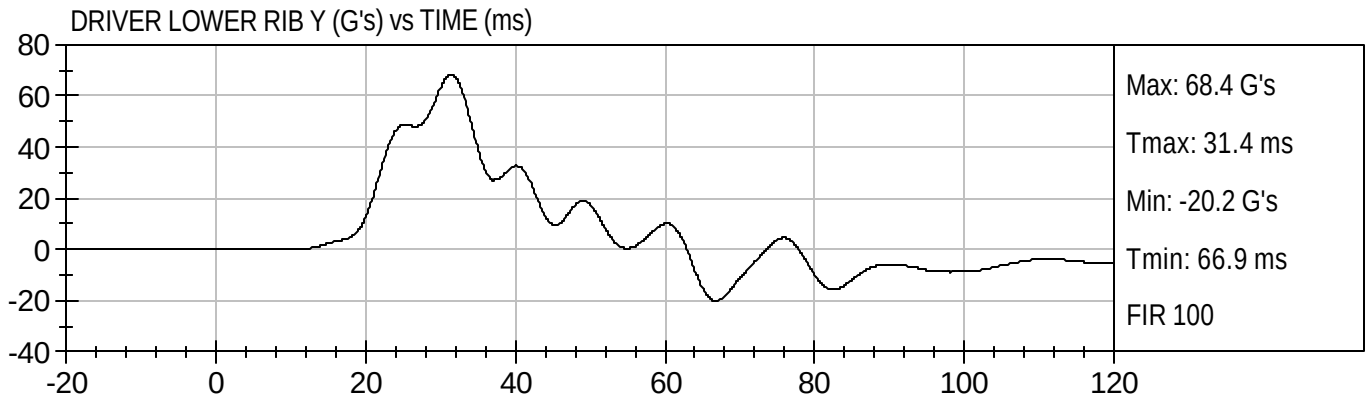






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2003 TOYOTA COROLLA 4 DOOR (C25106)

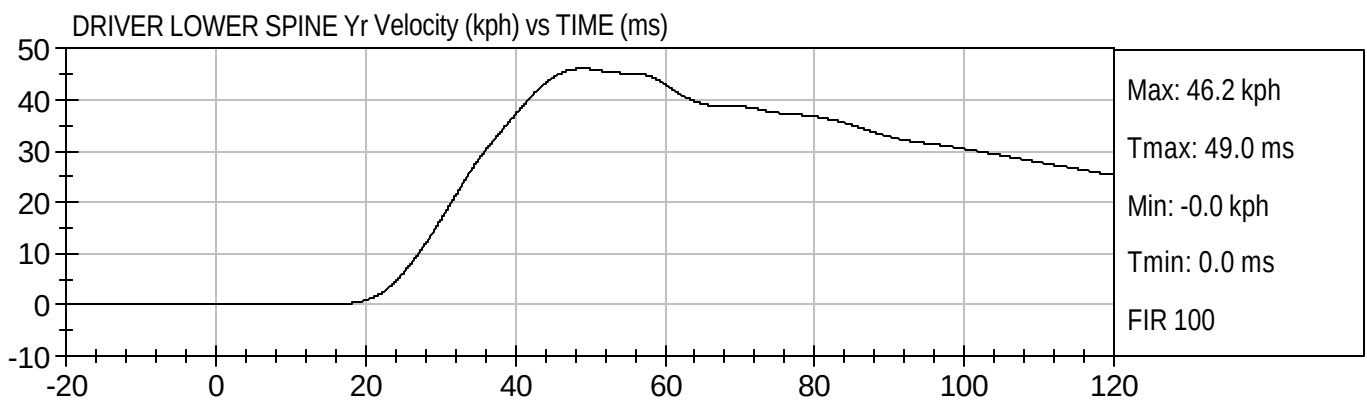
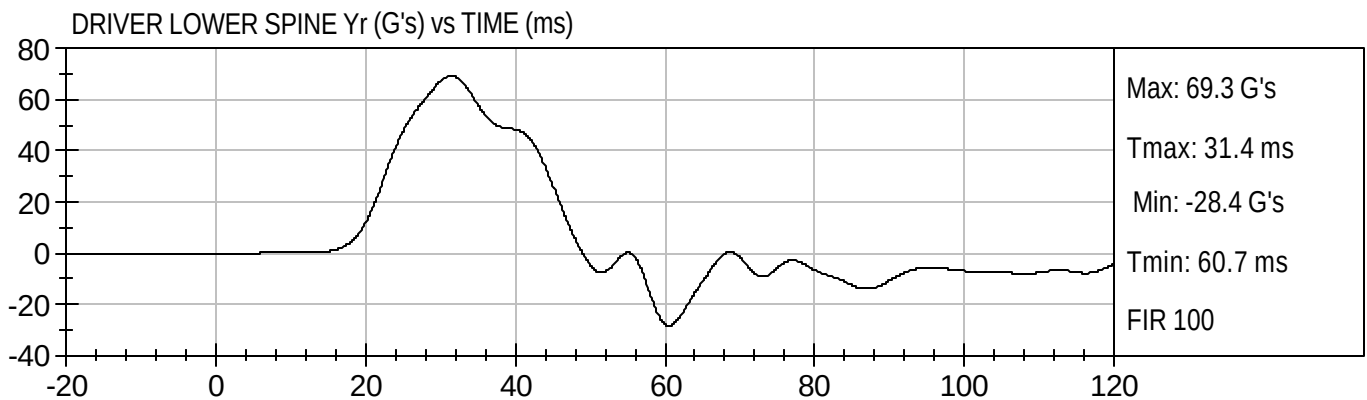
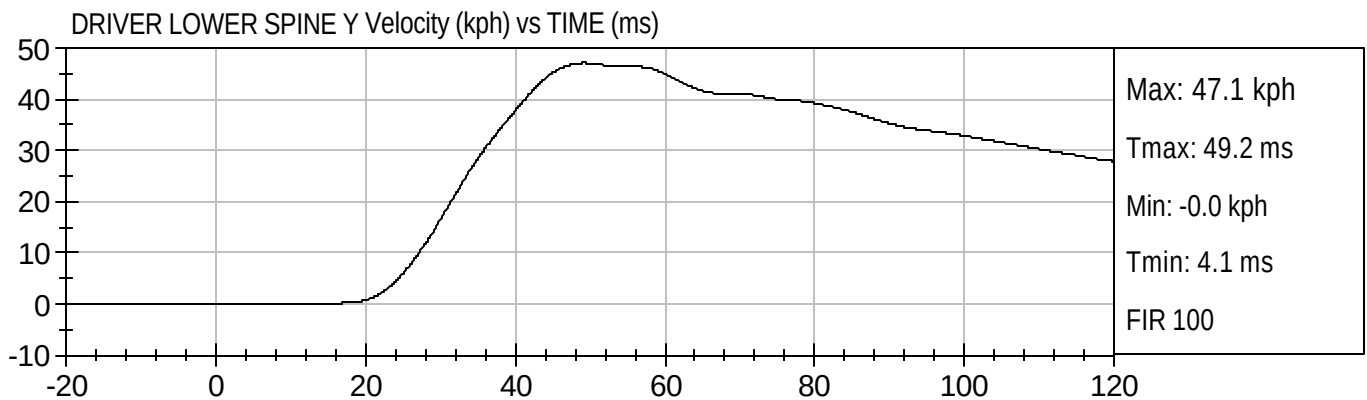
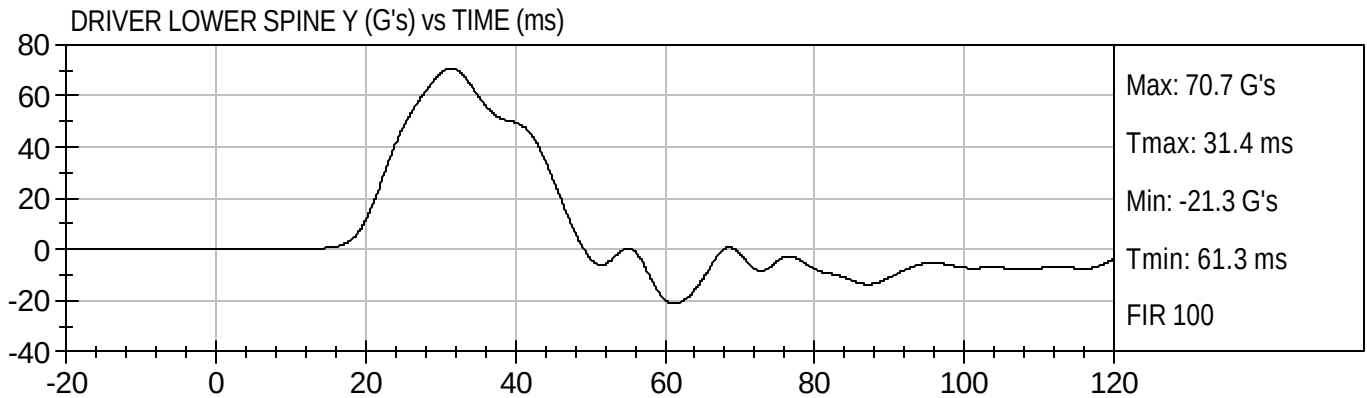
Test Date: 3/06/02
Speed: 38.5 mph (62.0 km/h)

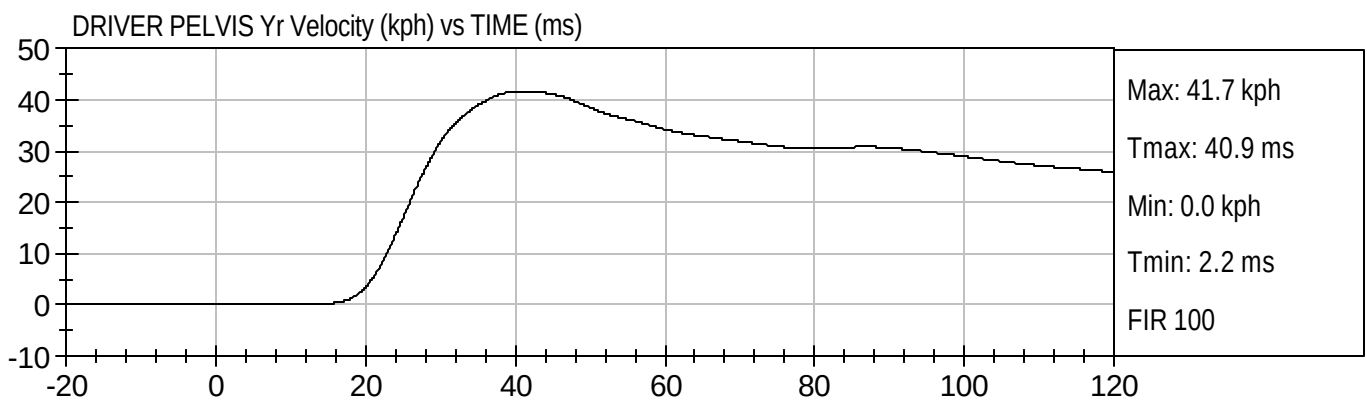
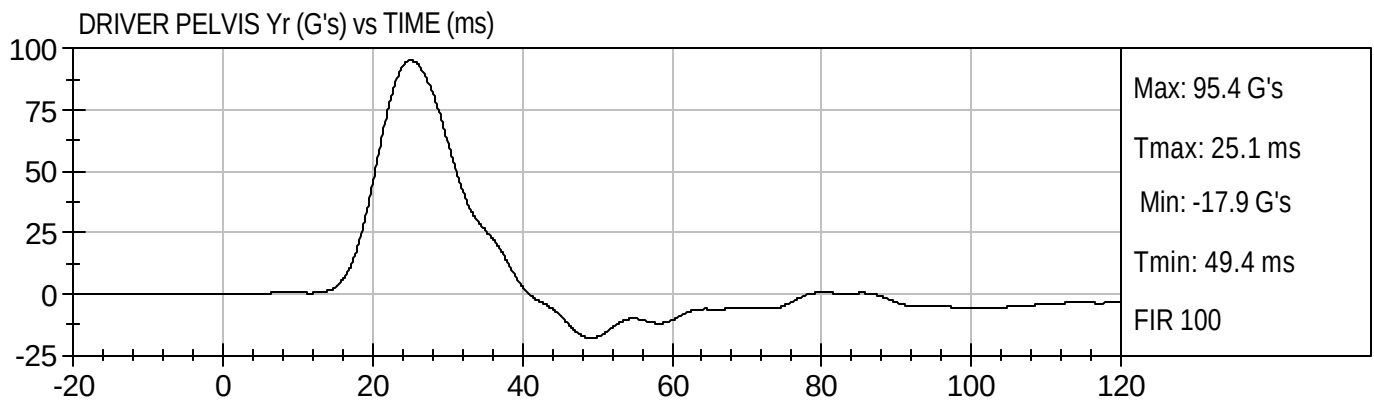
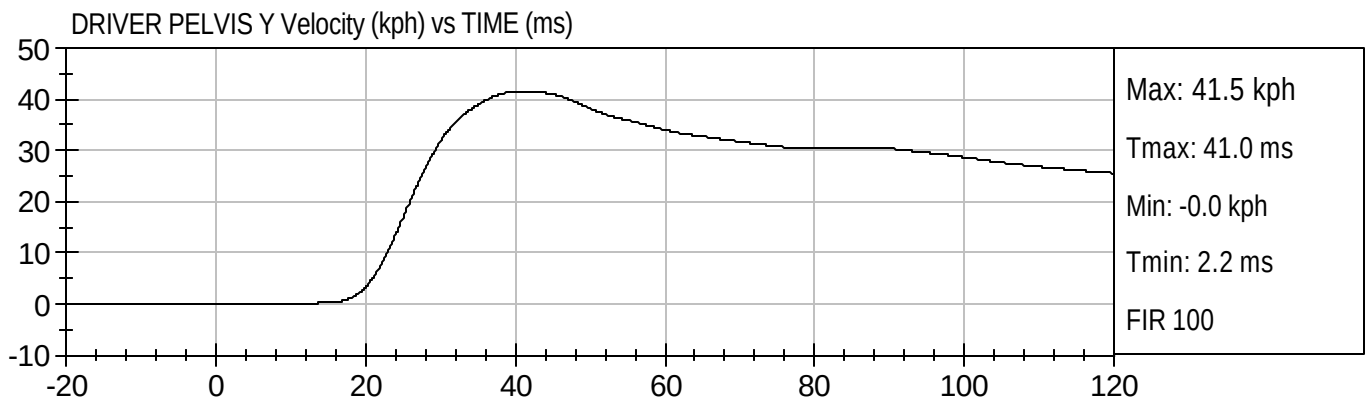
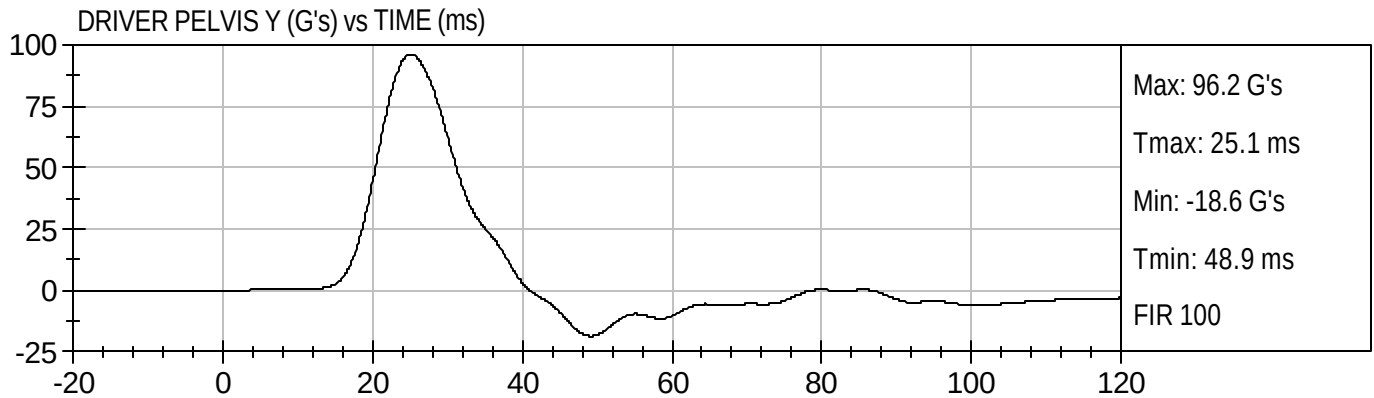




90 DEGREE INDICANT SIDE IMPACT
2003 TOYOTA COROLLA 4 DOOR (C25106)

Test Date: 3/06/02
Speed: 38.5 mph (62.0 km/h)

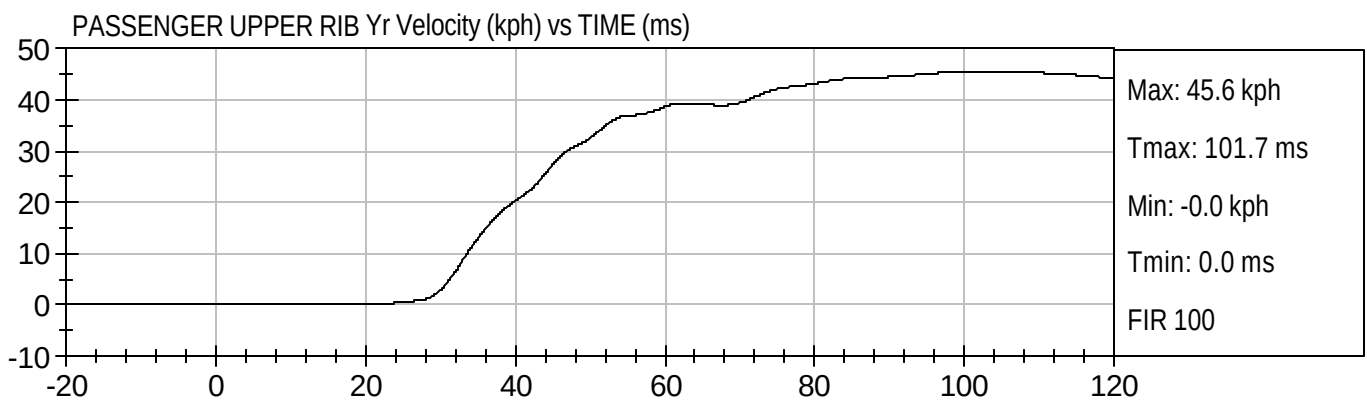
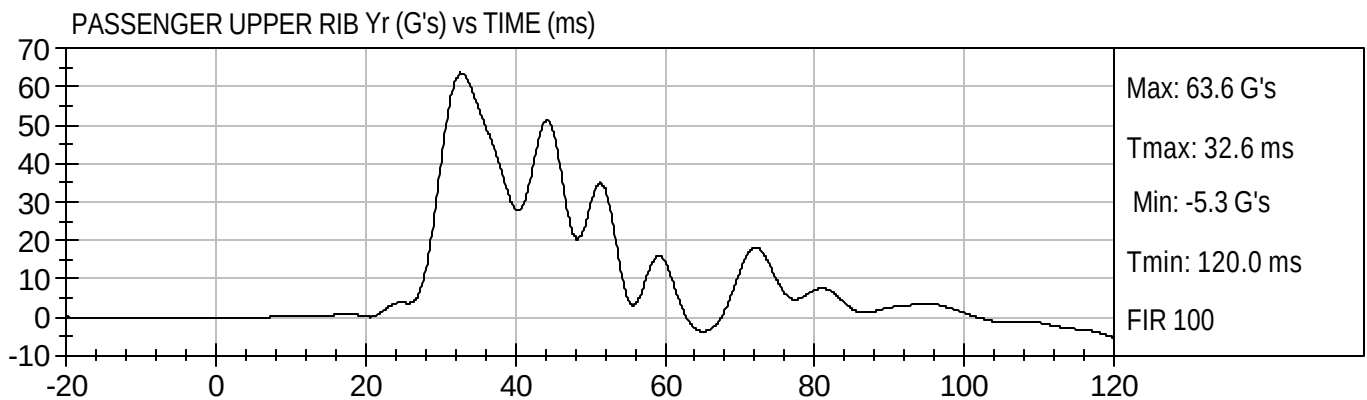
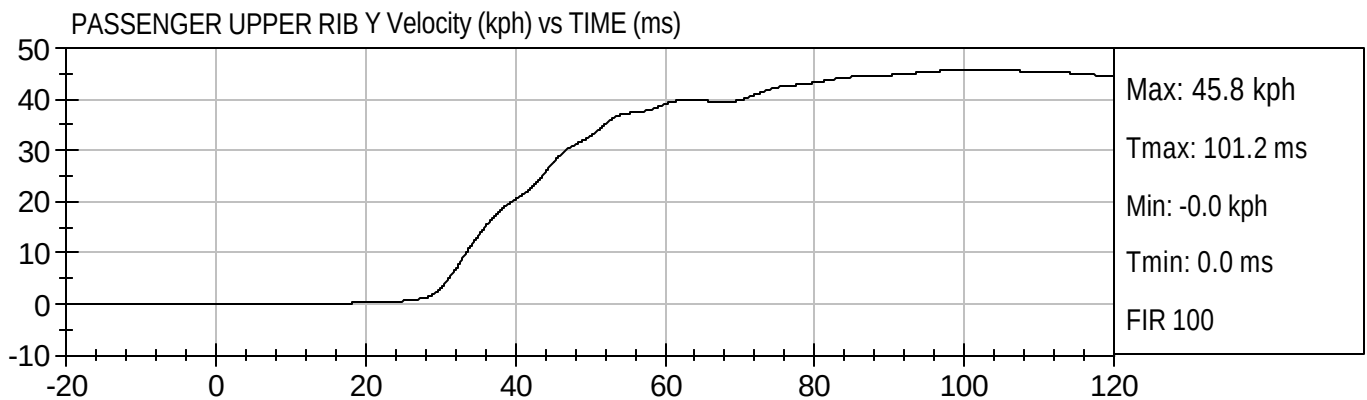
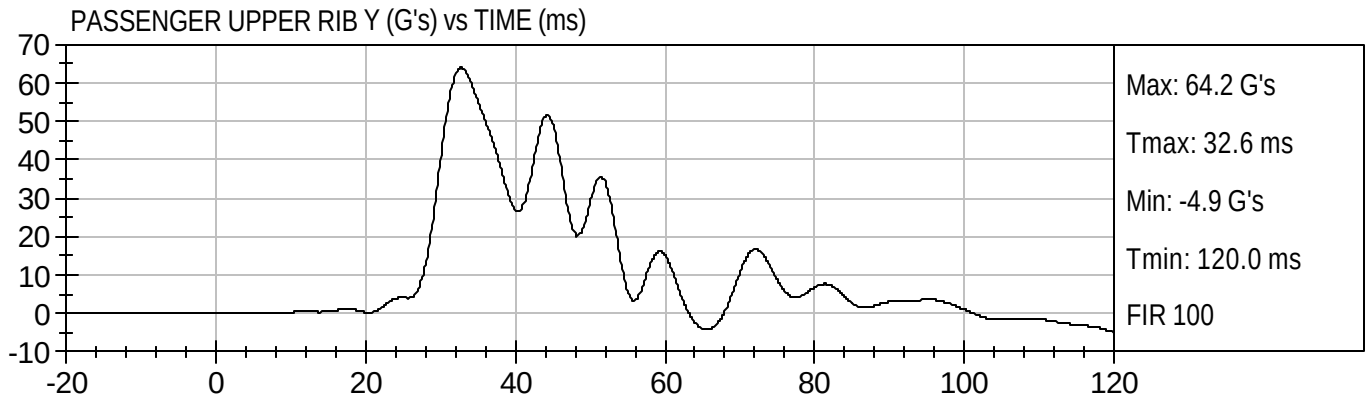


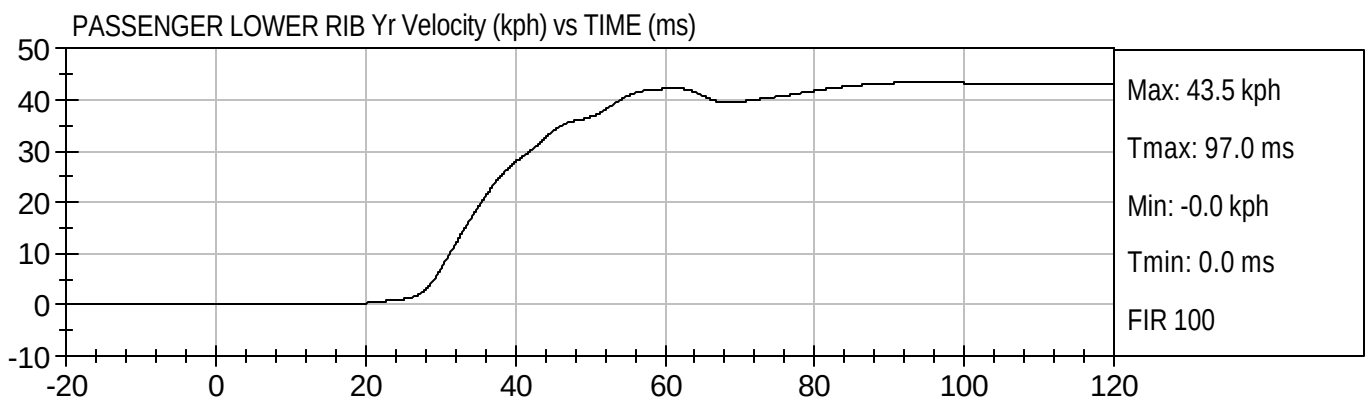
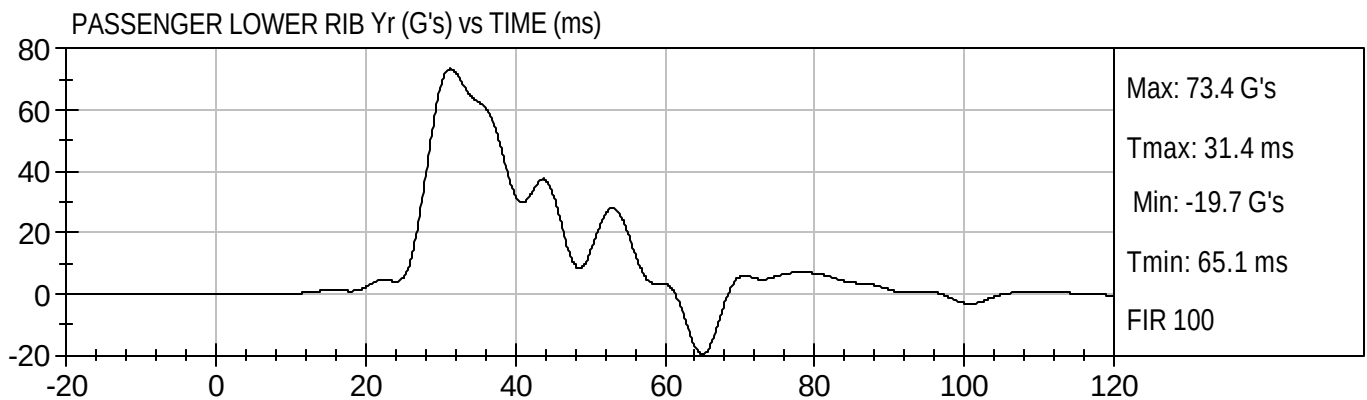
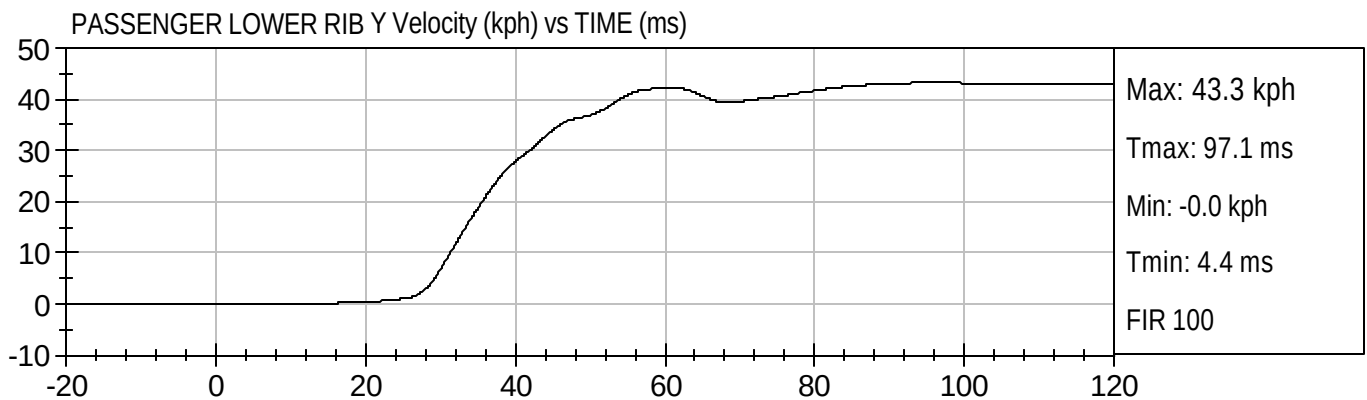
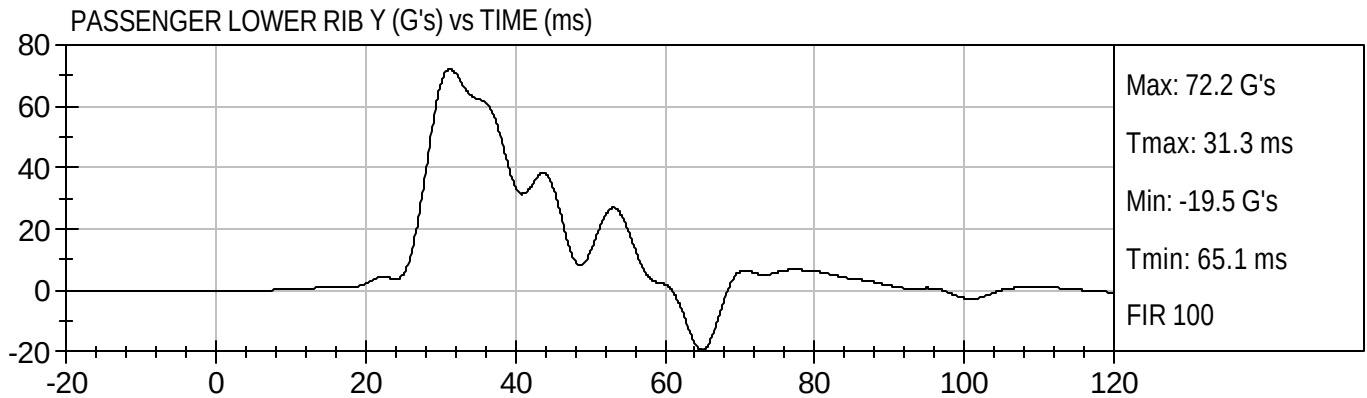


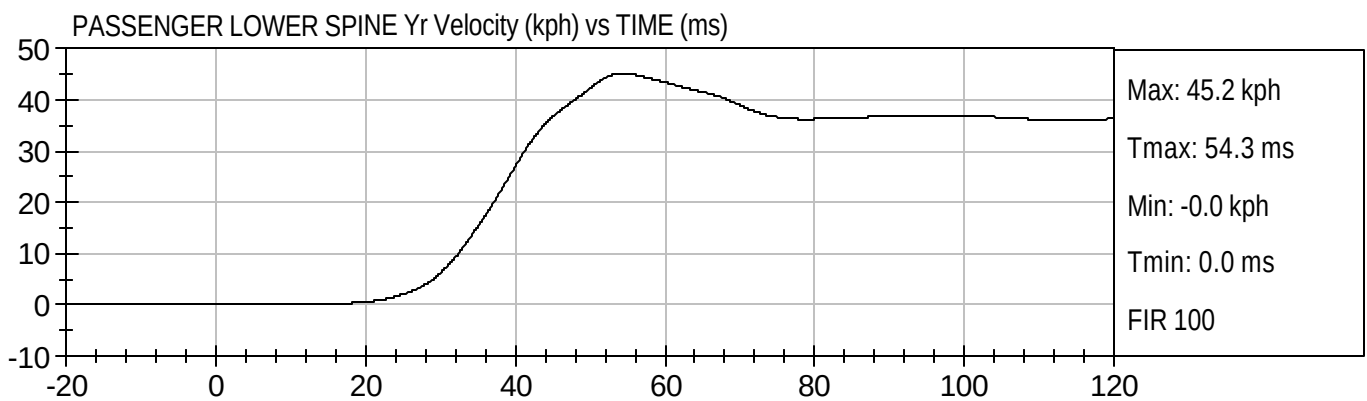
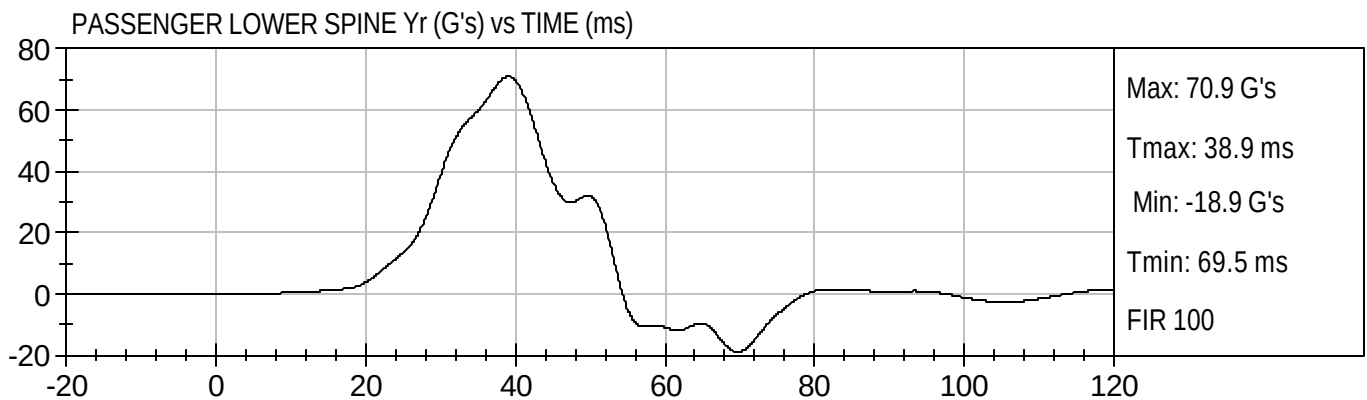
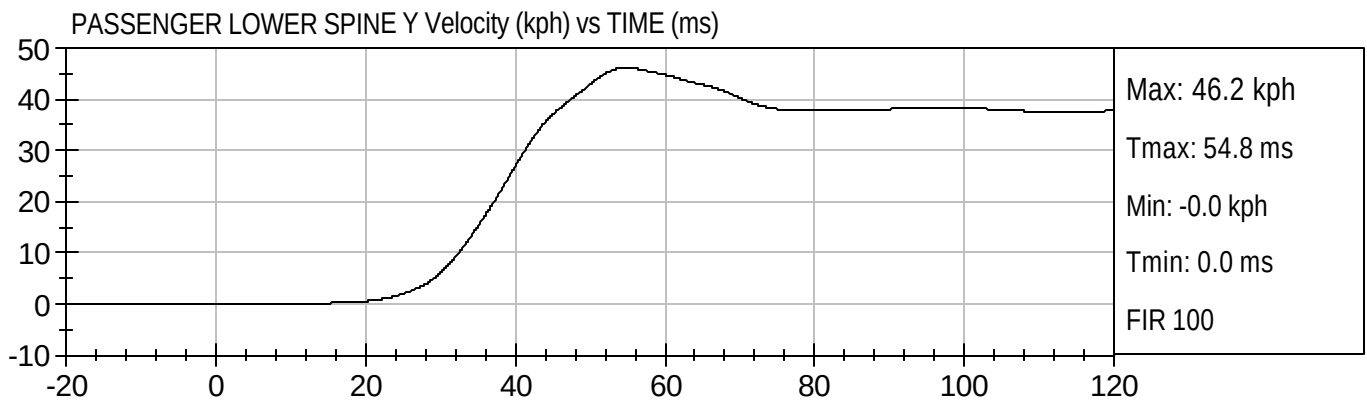
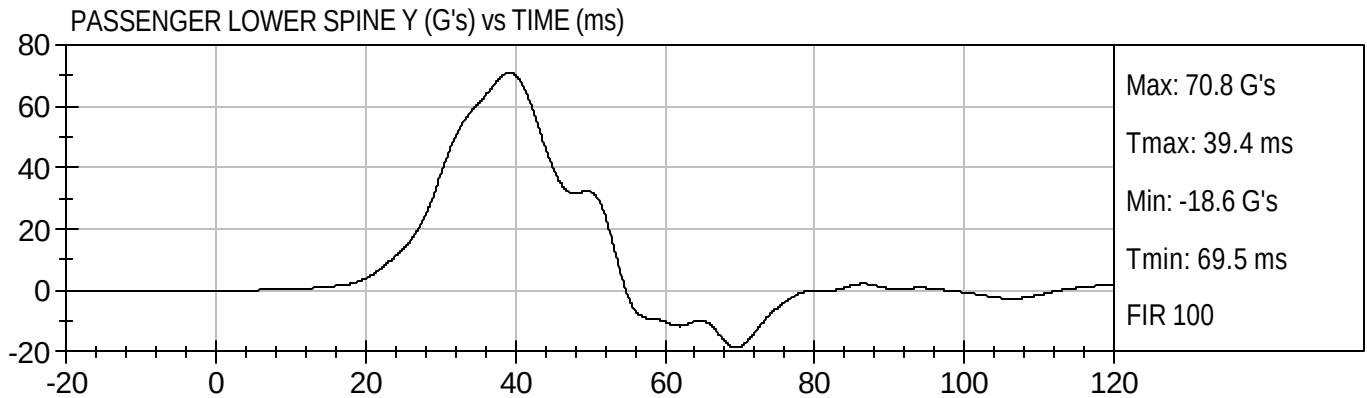


90 DEGREE INDICANT SIDE IMPACT
2003 TOYOTA COROLLA 4 DOOR (C25106)

Test Date: 3/06/02
Speed: 38.5 mph (62.0 km/h)



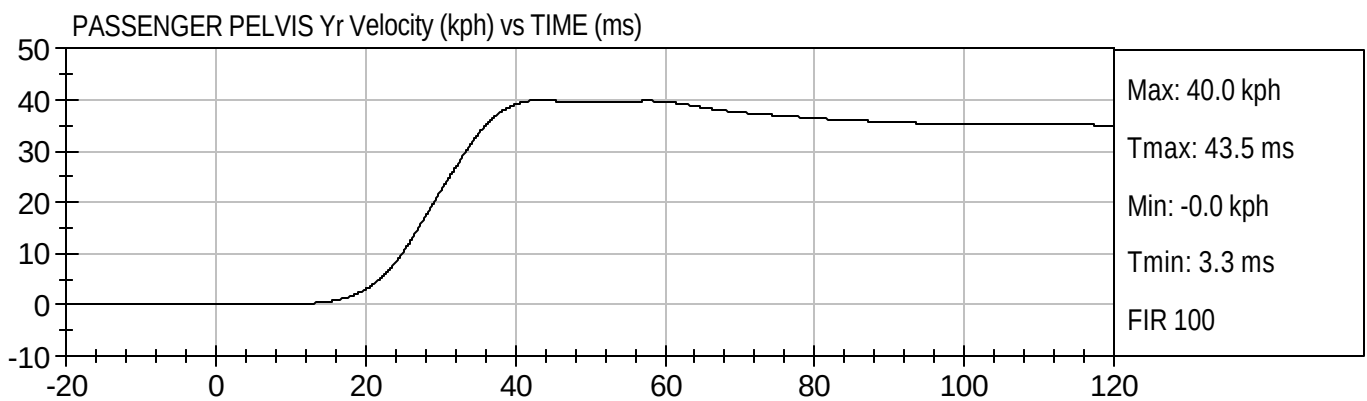
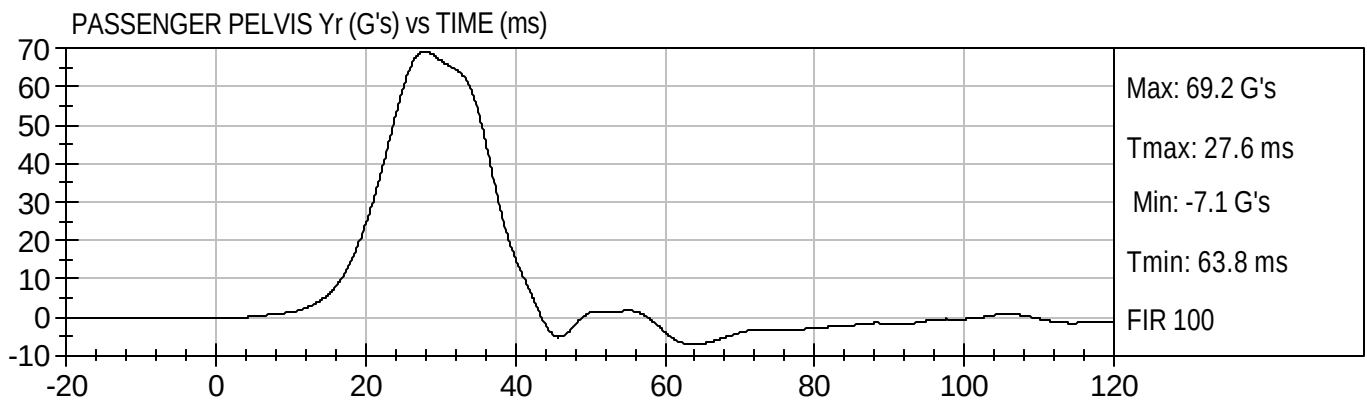
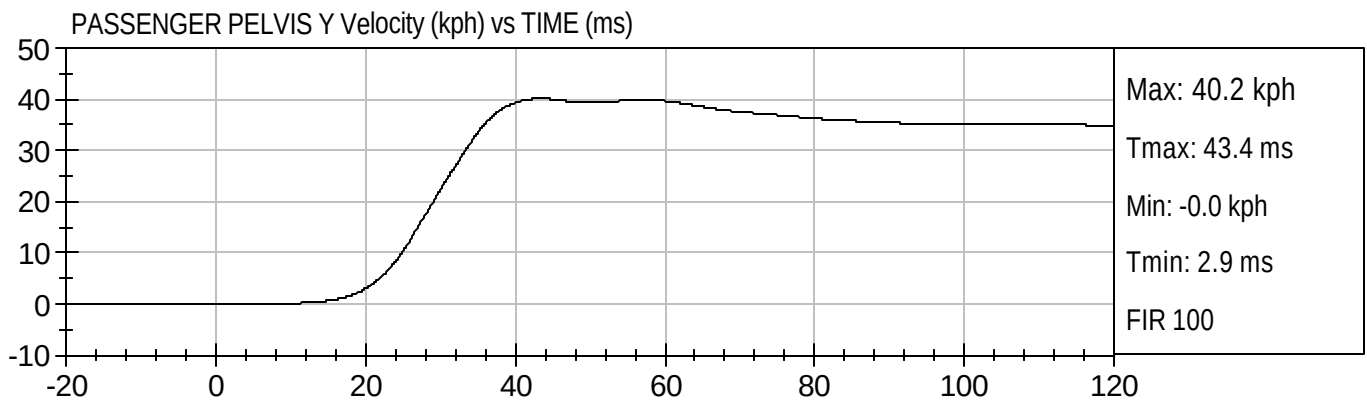
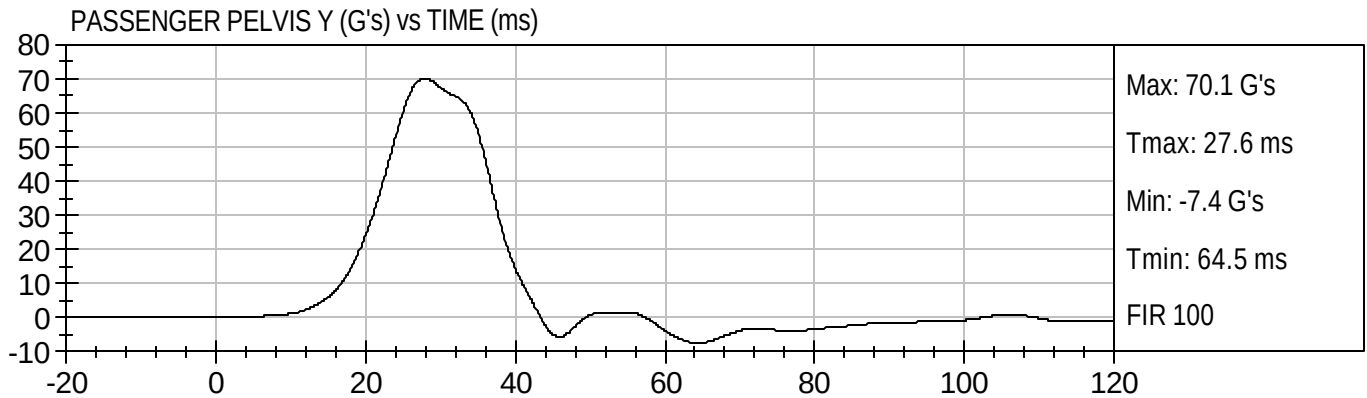






90 DEGREE INDICANT SIDE IMPACT
2003 TOYOTA COROLLA 4 DOOR (C25106)

Test Date: 3/06/02
Speed: 38.5 mph (62.0 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: 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	22.3	20.3
Laboratory Relative Humidity	%	10 to 70	21	21
Probe Velocity	m/s	4.27 - 4.33	4.32	4.29
Upper Rib	G's	37 - 46	41	45
Lower Rib	G's	37 - 46	43	45
Lower Spine	G's	15 - 22	19	21
Pelvis Impact				
Laboratory Temperature	deg C	18.9 to 25.5	22.3	20.3
Laboratory Relative Humidity	%	10 to 70	21	21
Probe Velocity	m/s	4.27 - 4.33	4.27	4.29
Pelvis Acceleration	G's	40 - 60	48	47

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	22.3	19.9
Laboratory Relative Humidity	%	10 to 70	22	20
Probe Velocity	m/s	4.27 - 4.33	4.27	4.29
Upper Rib	G's	37 - 46	46	46
Lower Rib	G's	37 - 46	44	46
Lower Spine	G's	15 - 22	18	18
Pelvis Impact				
Laboratory Temperature	deg C	18.9 to 25.5	22.3	19.9
Laboratory Relative Humidity	%	10 to 70	22	20
Probe Velocity	m/s	4.27 - 4.33	4.27	4.30
Pelvis Acceleration	G's	40 - 60	42	43

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: D0223

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

2/15/02
Test Date

Approved By

SID Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration

ATD Serial No: 037

Test I.D: D02231

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	220	Pass
Peak Lateral Acceleration	G's	< 10	2	Pass
Time Above 100 G	msec	0.9 - 1.5	1.3	Pass
			Overall Test Results	Pass

Laboratory Technician

2/14/02
Test Date

Approved By



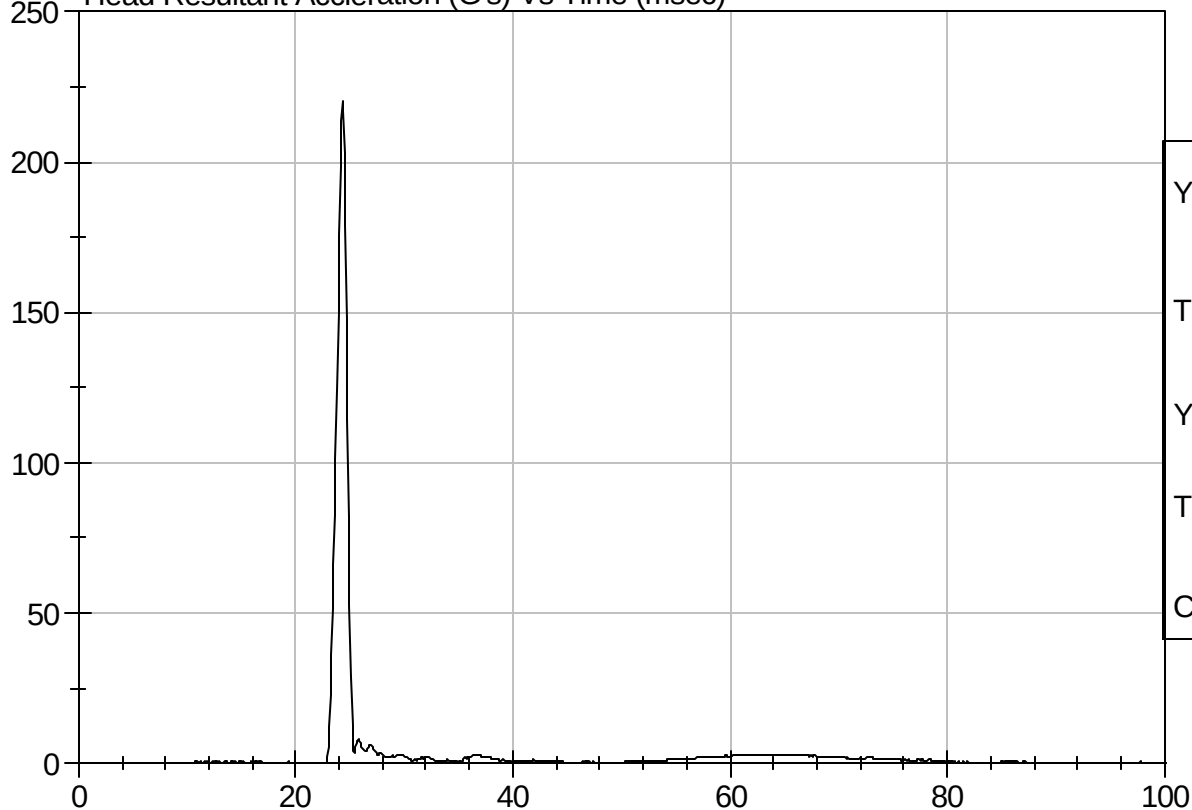
Test Description: Head Drop

Test Date: 2/14/02

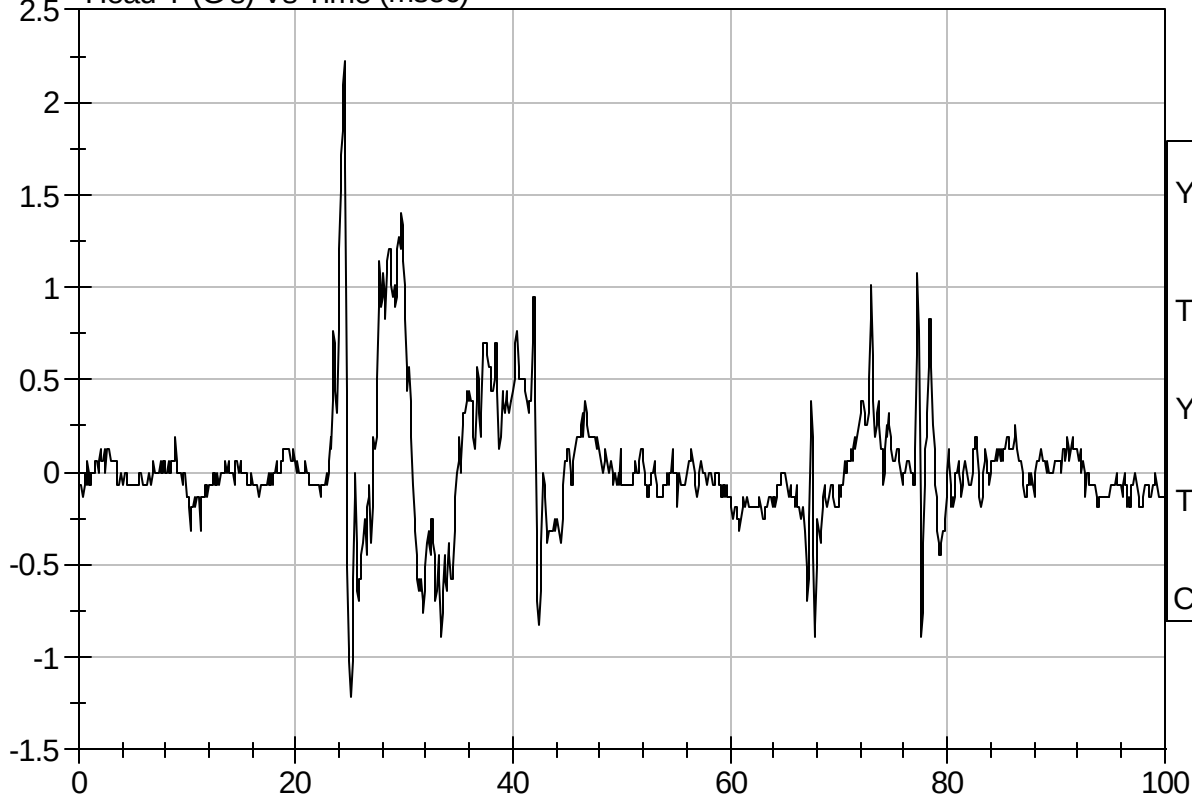
Component: D02231

Speed: 0 ft/s, 0.00 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: D02232

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	22.3	Pass
Laboratory Relative Humidity	%	10 to 70	21	Pass
Probe Velocity	m/s	4.27 - 4.33	4.32	Pass
Upper Rib	G's	37 - 46	41	Pass
Lower Rib	G's	37 - 46	43	Pass
Lower Spine	G's	15 - 22	19	Pass
			Overall Test Results	Pass

Laboratory Technician

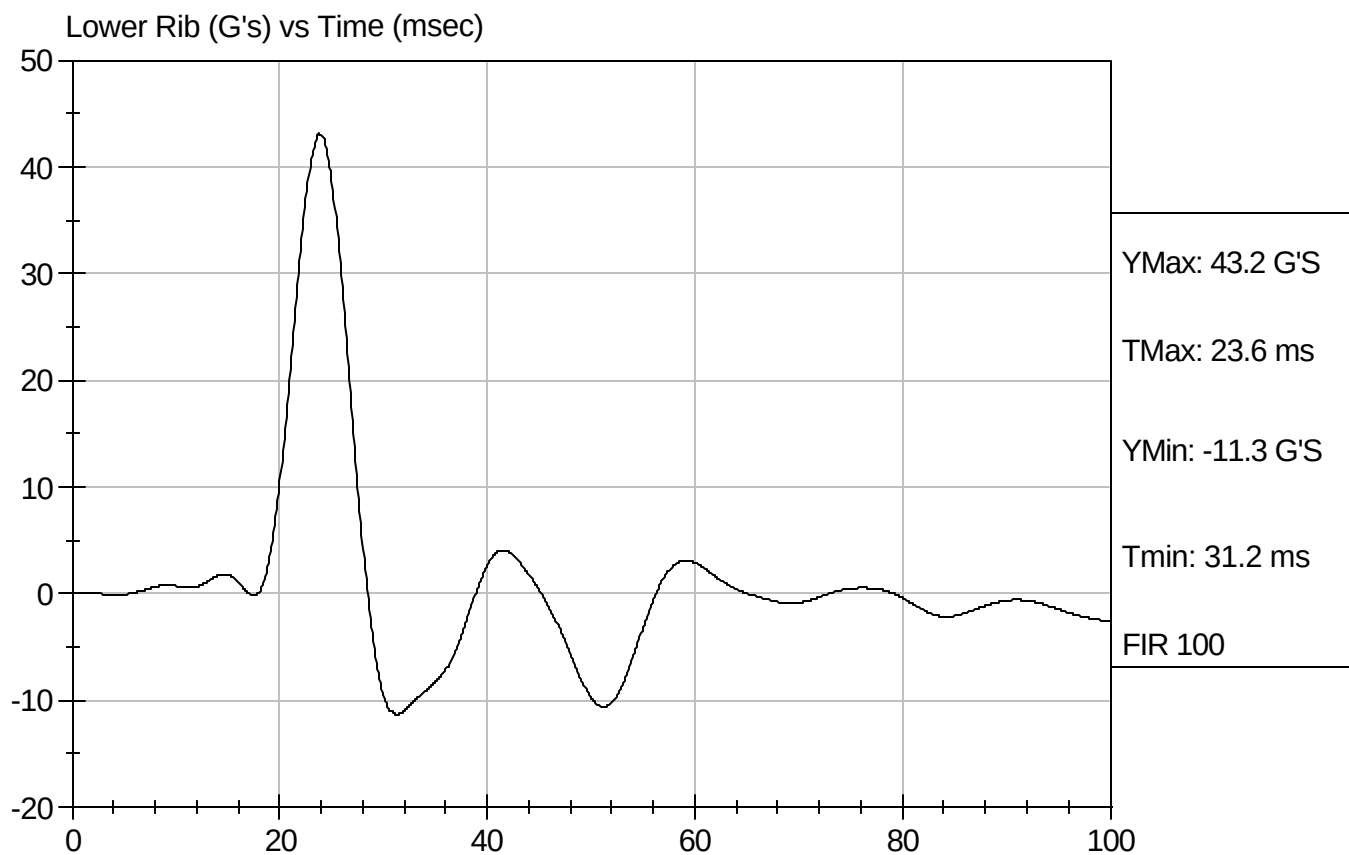
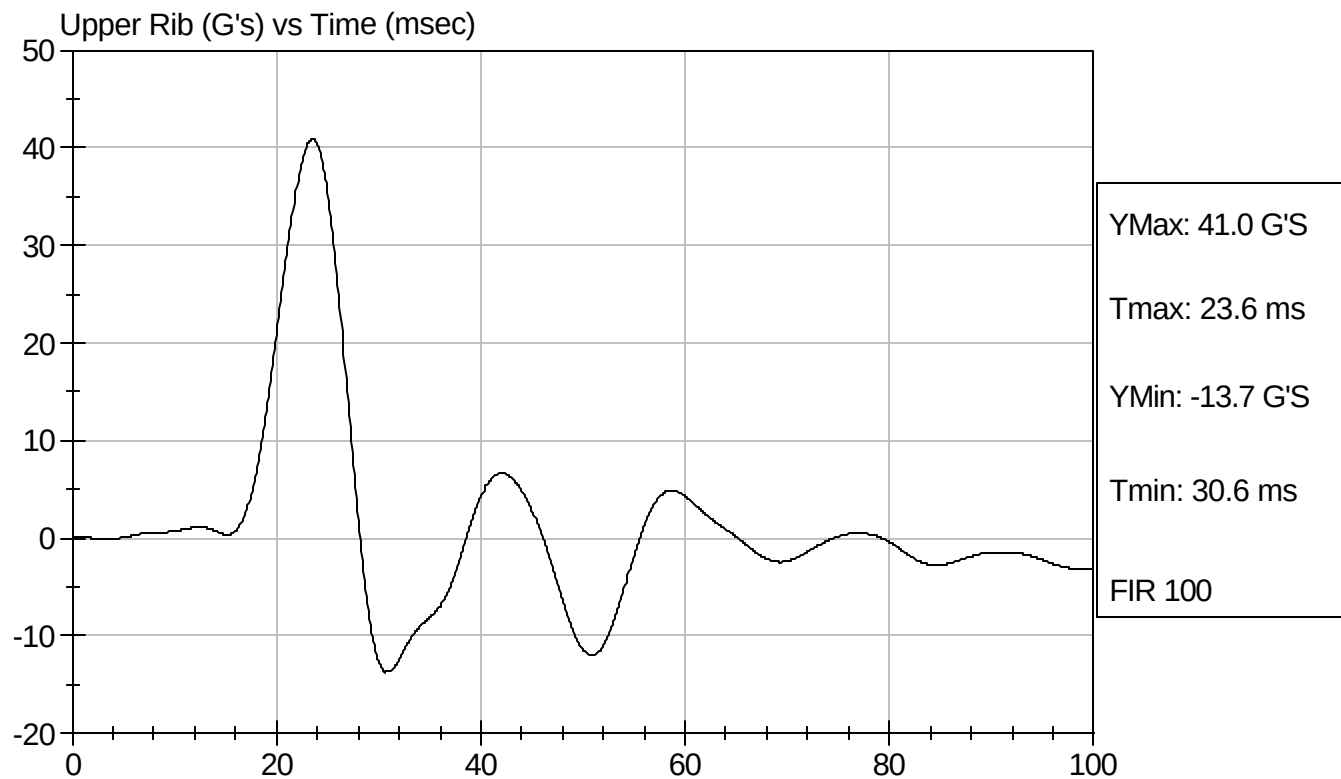
2/15/02
Test Date

Approved By



Test Desc: Thorax Impact
Component ID: D02232

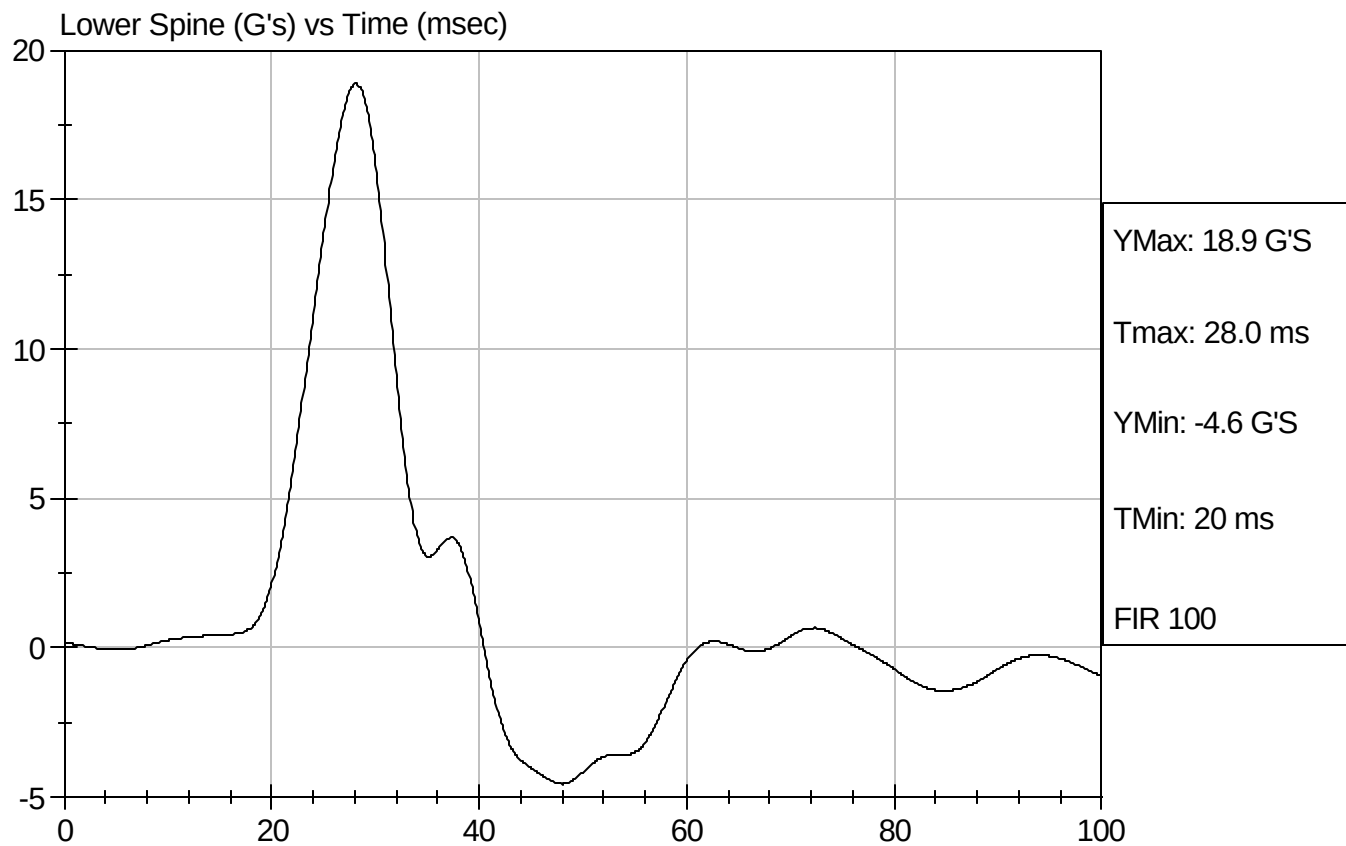
Test Date: 2/15/02
Speed: 14.17 ft/sec, 4.32 m/sec





Test Desc: Thorax Impact
Component ID: D02232

Test Date: 2/15/02
Speed: 14.17 ft/sec, 4.32 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 037

Test I.D: D02233

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	22.3	Pass
Laboratory Relative Humidity	%	10 to 70	21	Pass
Probe Velocity	m/s	4.27 - 4.33	4.27	Pass
Pelvis Acceleration	G's	40 - 60	48	Pass
Overall Test Results			Pass	

Laboratory Technician

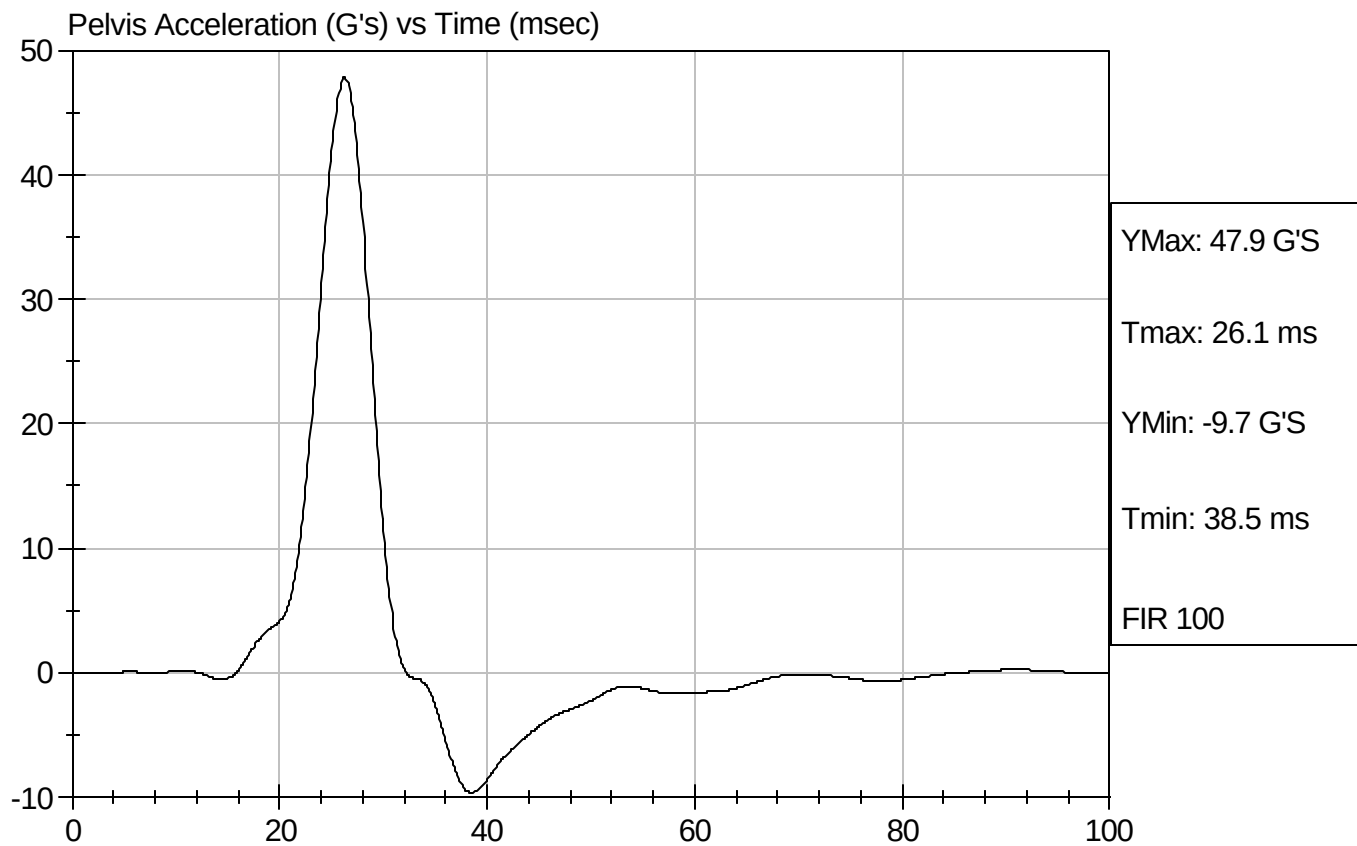
2/15/02
Test Date

Approved By



Test Desc: Pelvis Impact
Component ID: D02233

Test Date: 2/15/02
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: D02234

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	21	Pass
Force At 12.7 mm	N	104 -162	126	Pass
Force At 19 mm	N	163 - 222	181	Pass
Force At 25.4 mm	N	222 - 280	245	Pass
Force At 33 mm	N	325 - 391	347	Pass
Overall Test Results				Pass

Laboratory Technician

2/14/02
Test Date

Approved By

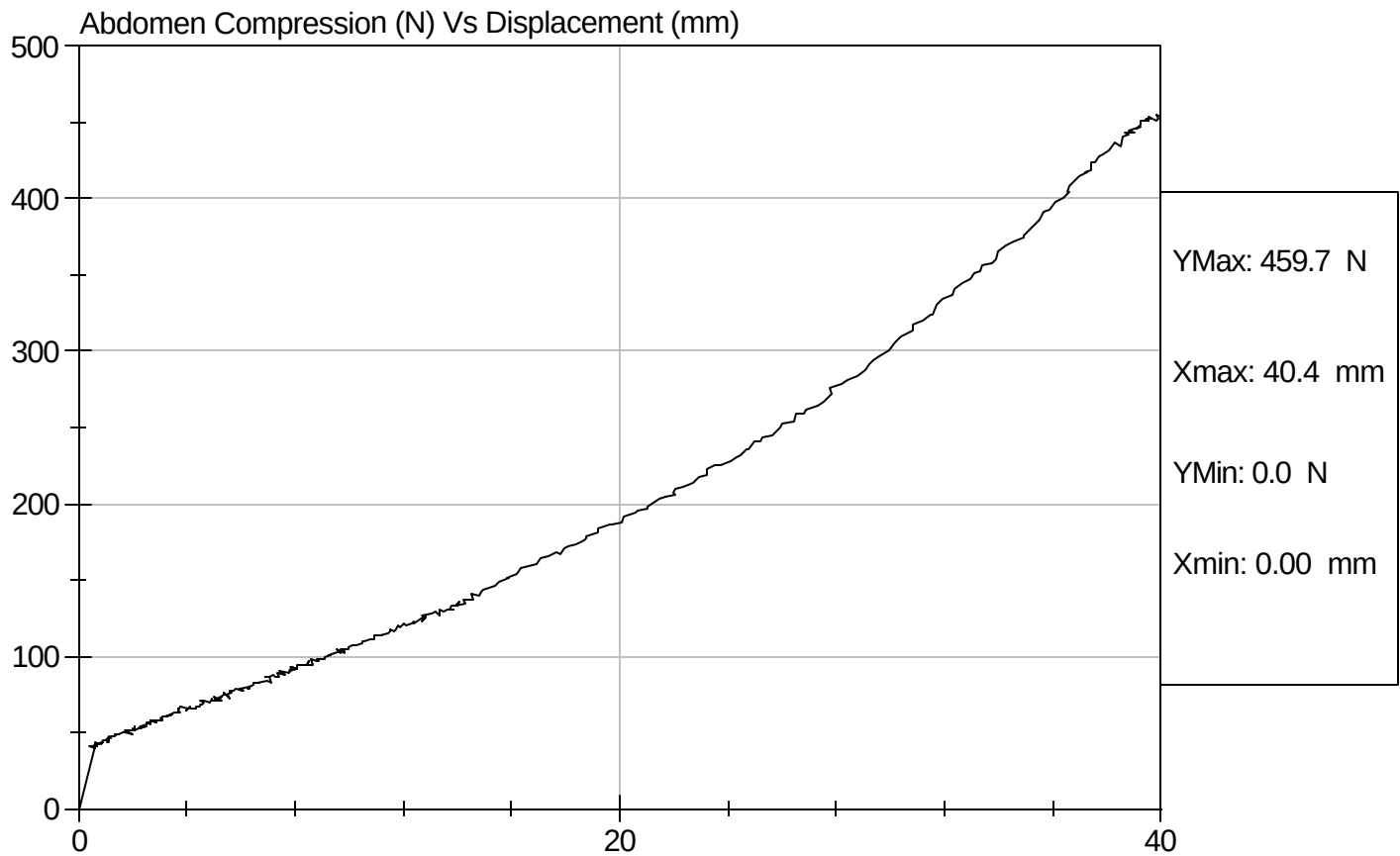


Test Description: Abdomen Compression

Test Date: 2/14/02

Component: D02234

Speed: 0 ft/sec, 0.00 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 037

Test I.D: D02235

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	21	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	134.2	Pass
Force At 30 deg	N	151.2 - 204.6	166.4	Pass
Force At 40 deg	N	204.6 - 258.0	238.7	Pass
Return Angle	Deg	12 Maximum	5	Pass
Overall Test Results			Pass	

Laboratory Technician

2/14/02
Test Date

Approved By

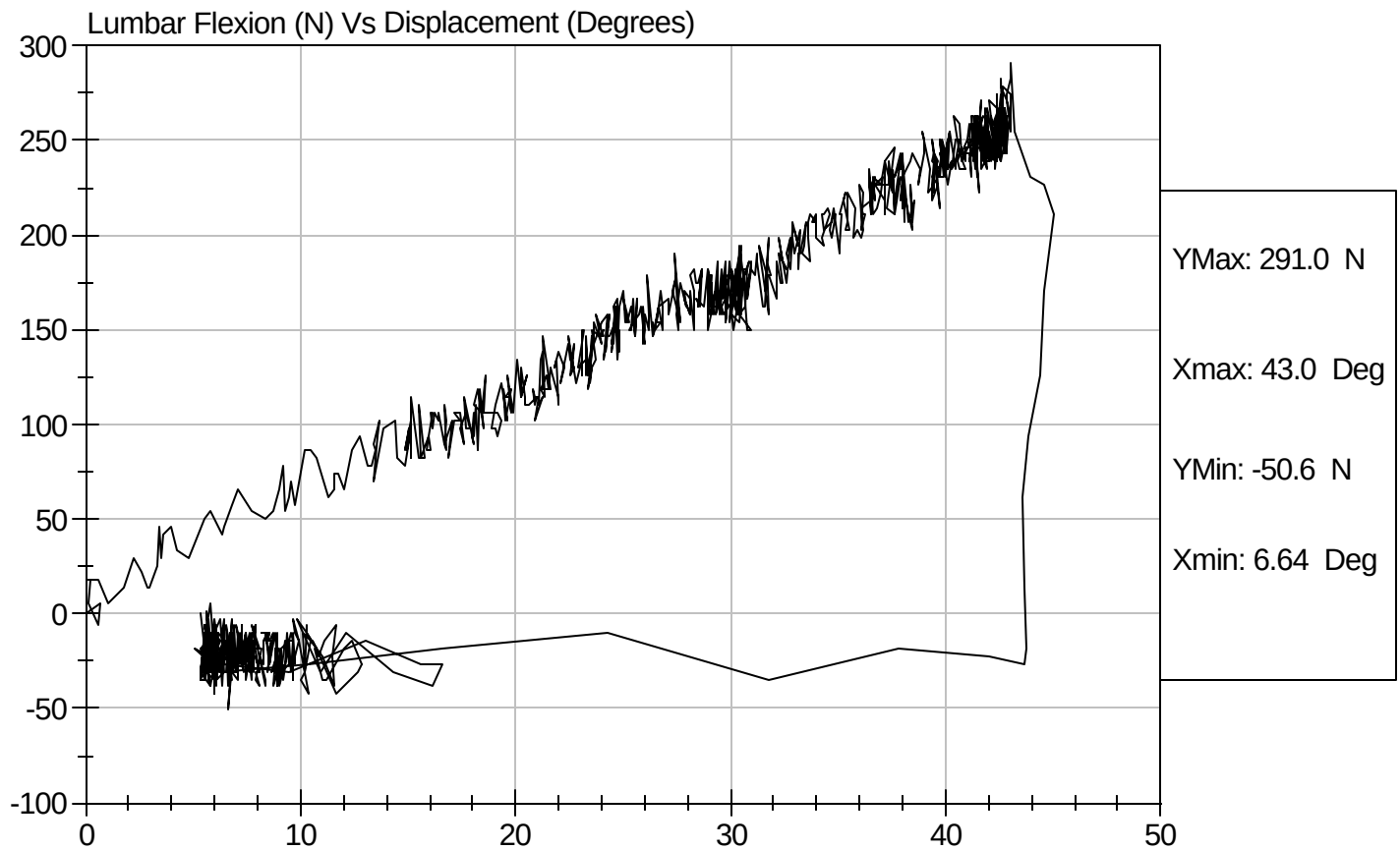


Test Description: Lumbar Flexion

Test Date: 2/14/02

Component: D02235

Speed: 0 ft/sec, 0.00 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

3/11/02

Test Date

Approved By

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: D0222

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

2/19/02

Test Date

Approved By

SID Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration

ATD Serial No: 036

Test I.D: D02221

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	230	Pass
Peak Lateral Acceleration	G's	< 10	1	Pass
Time Above 100 G	msec	0.9 - 1.5	1.3	Pass
			Overall Test Results	Pass

Laboratory Technician

2/14/02
Test Date

Approved By



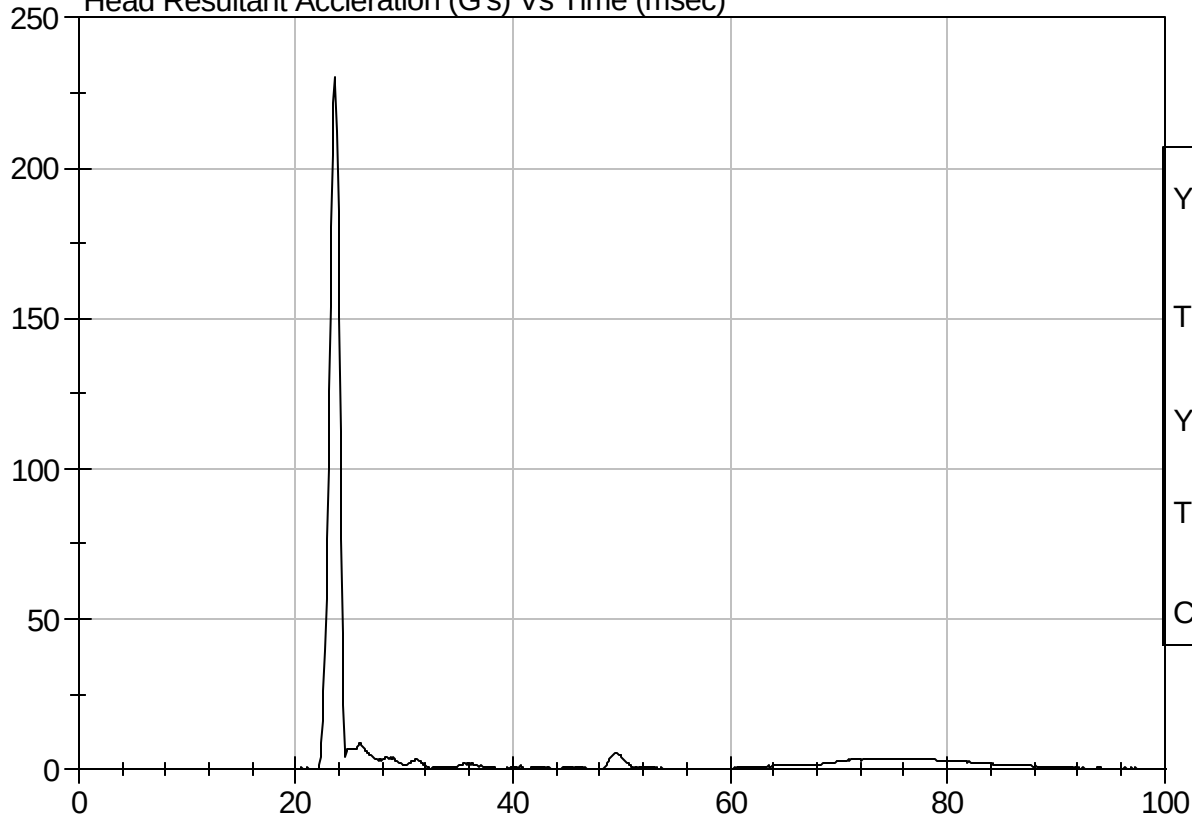
Test Description: Head Drop

Test Date: 2/14/02

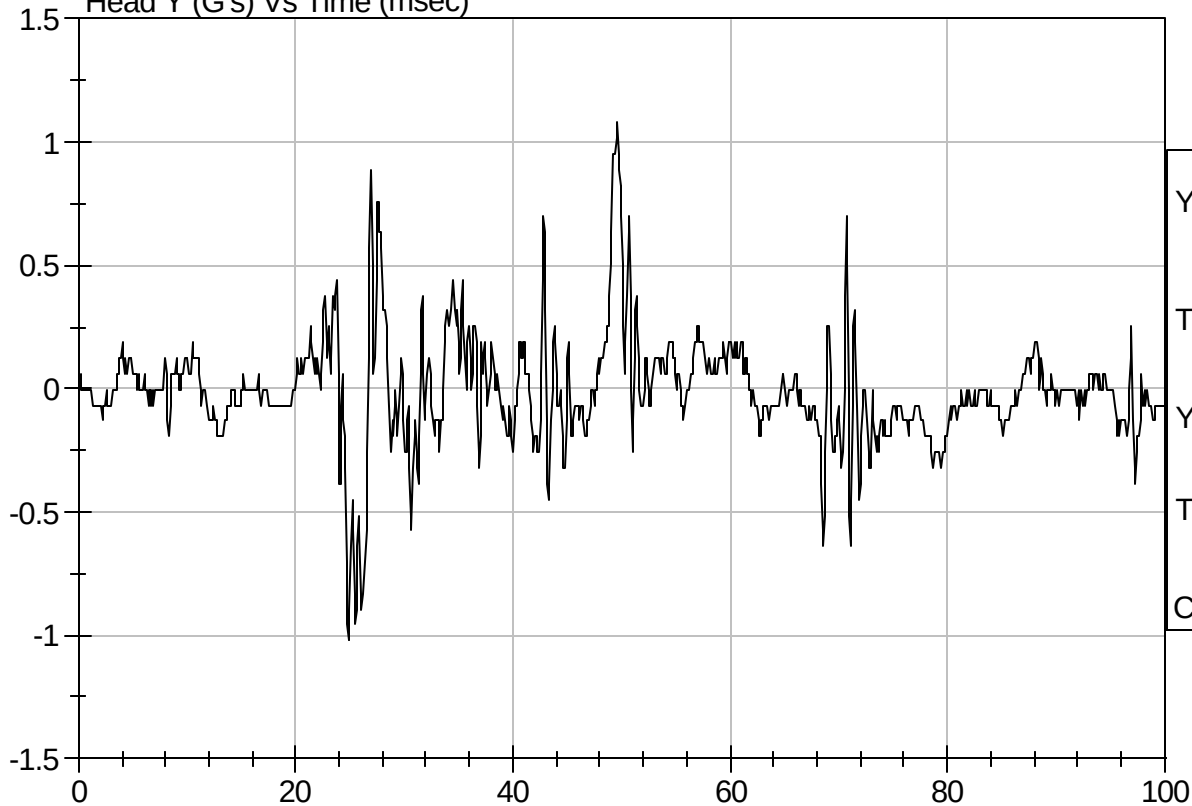
Component: D02221

Speed: 0 ft/s, 0.00 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: D02222

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	22.3	Pass
Laboratory Relative Humidity	%	10 to 70	22	Pass
Probe Velocity	m/s	4.27 - 4.33	4.27	Pass
Upper Rib	G's	37 - 46	46	Pass
Lower Rib	G's	37 - 46	44	Pass
Lower Spine	G's	15 - 22	18	Pass
			Overall Test Results	Pass

Laboratory Technician

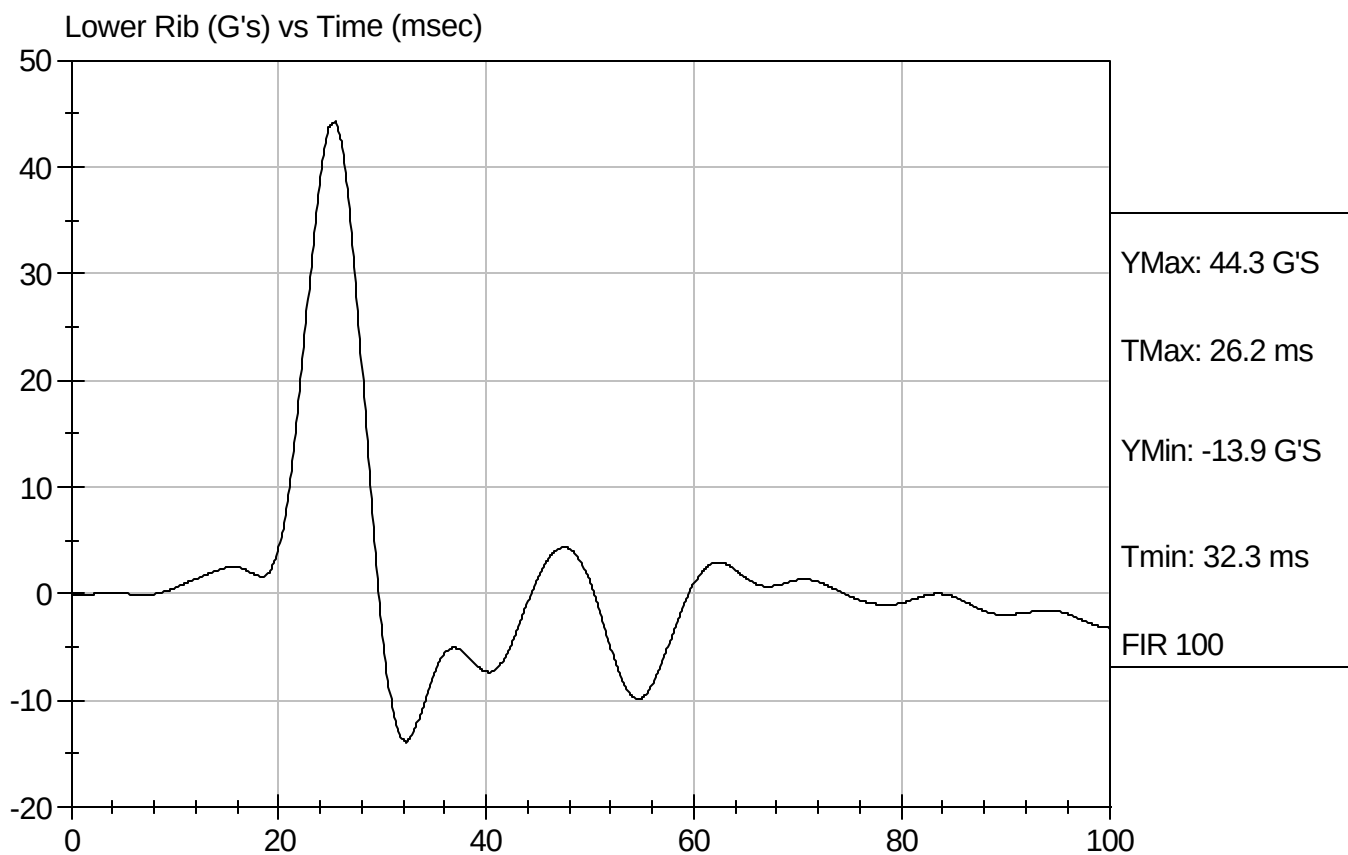
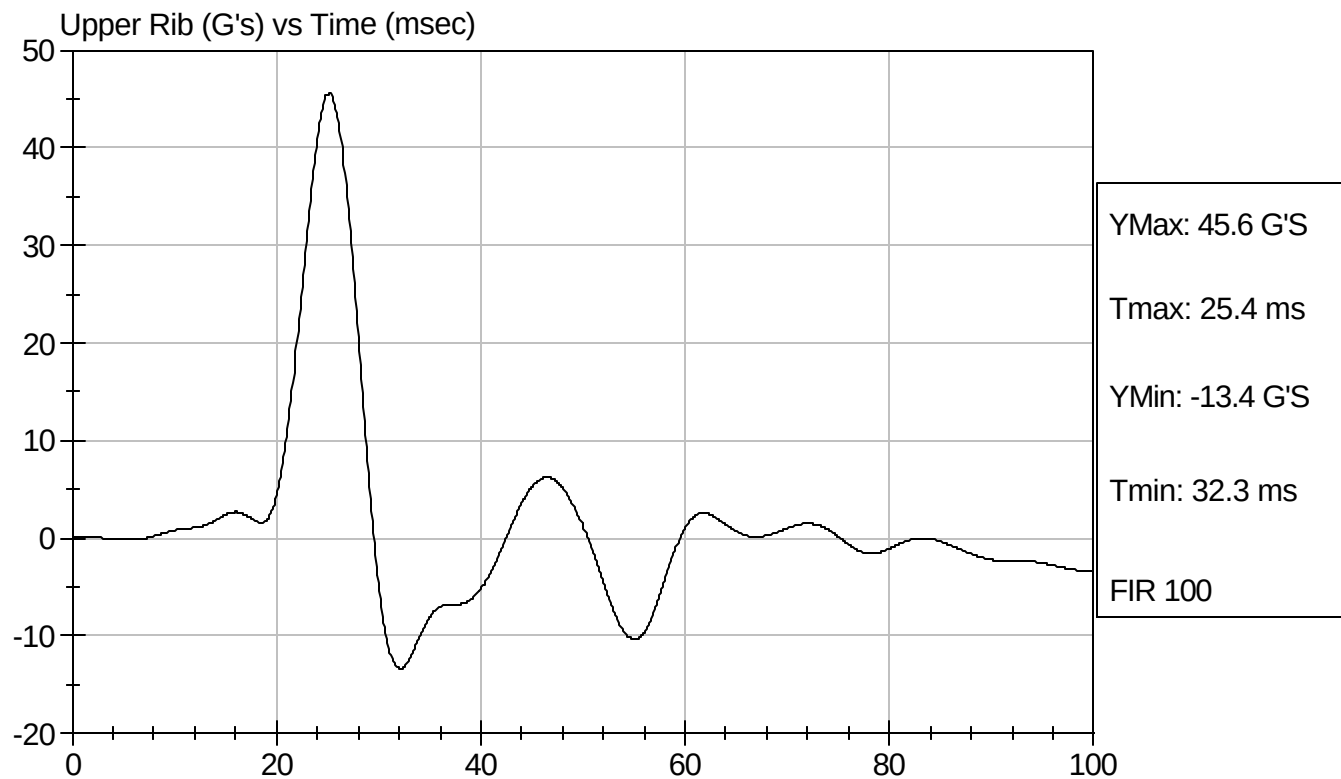
2/15/02
Test Date

Approved By



Test Desc: Thorax Impact
Component ID: D02222

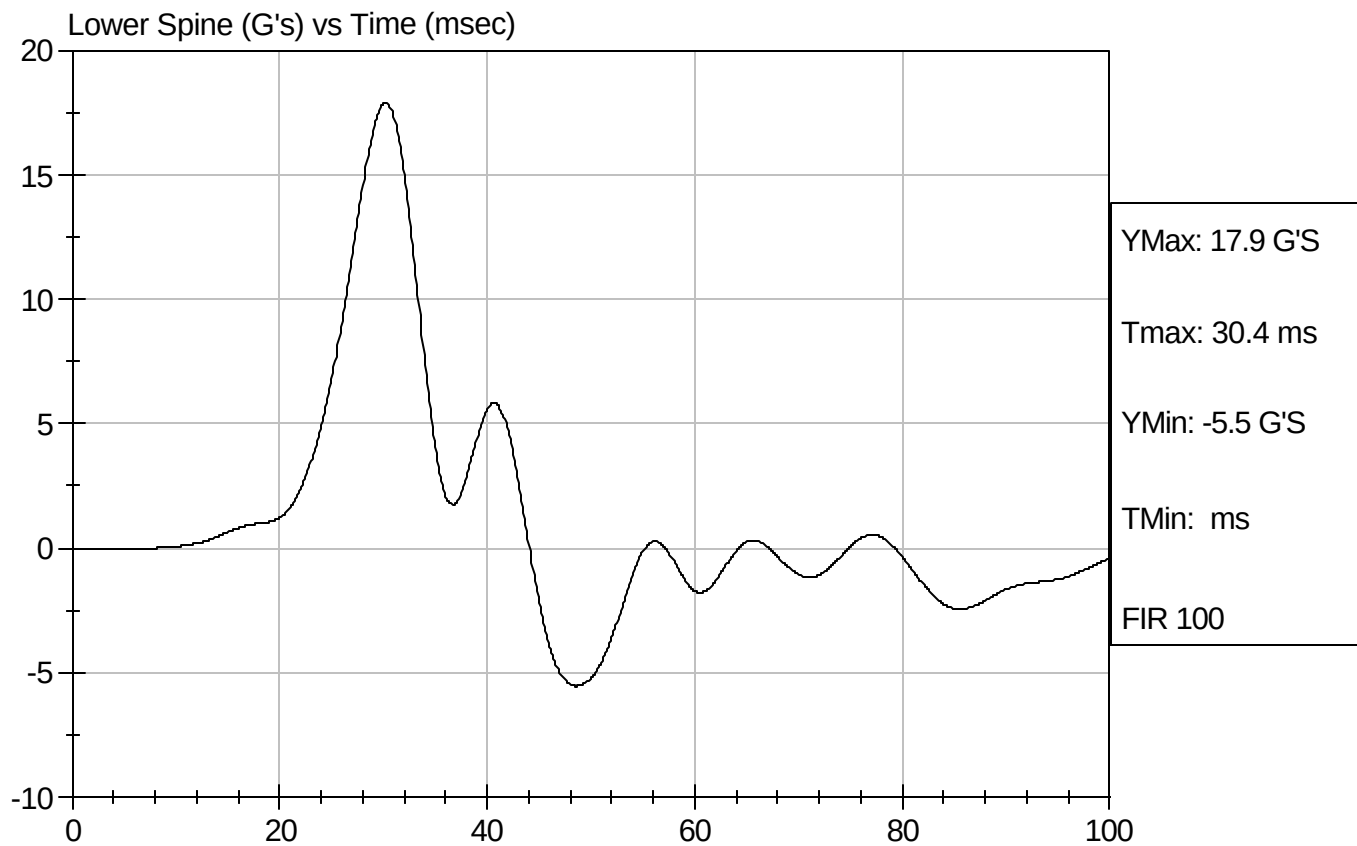
Test Date: 2/15/02
Speed: 14.02 ft/sec, 4.27 m/sec





Test Desc: Thorax Impact
Component ID: D02222

Test Date: 2/15/02
Speed: 14.02 ft/sec, 4.27 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 036

Test I.D: D02223

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	22.3	Pass
Laboratory Relative Humidity	%	10 to 70	22	Pass
Probe Velocity	m/s	4.27 - 4.33	4.27	Pass
Pelvis Acceleration	G's	40 - 60	42	Pass
Overall Test Results			Pass	

Laboratory Technician

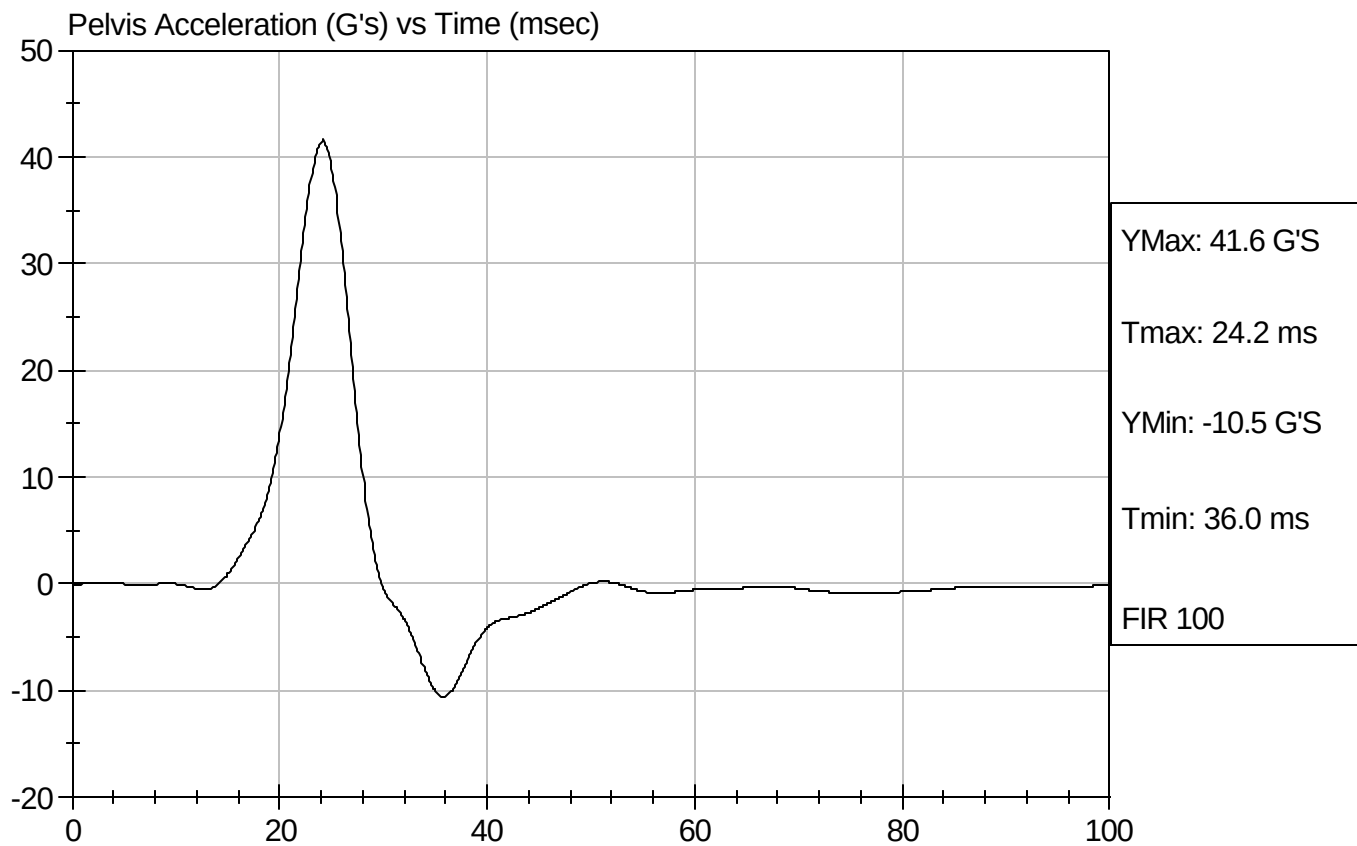
2/19/02
Test Date

Approved By



Test Desc: Thorax Impact
Component ID: D02223

Test Date: 2/19/02
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: 036

Test I.D: D02224

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	21	Pass
Force At 12.7 mm	N	104 -162	144	Pass
Force At 19 mm	N	163 - 222	194	Pass
Force At 25.4 mm	N	222 - 280	257	Pass
Force At 33 mm	N	325 - 391	358	Pass
Overall Test Results				Pass

Laboratory Technician

2/14/02
Test Date

Approved By

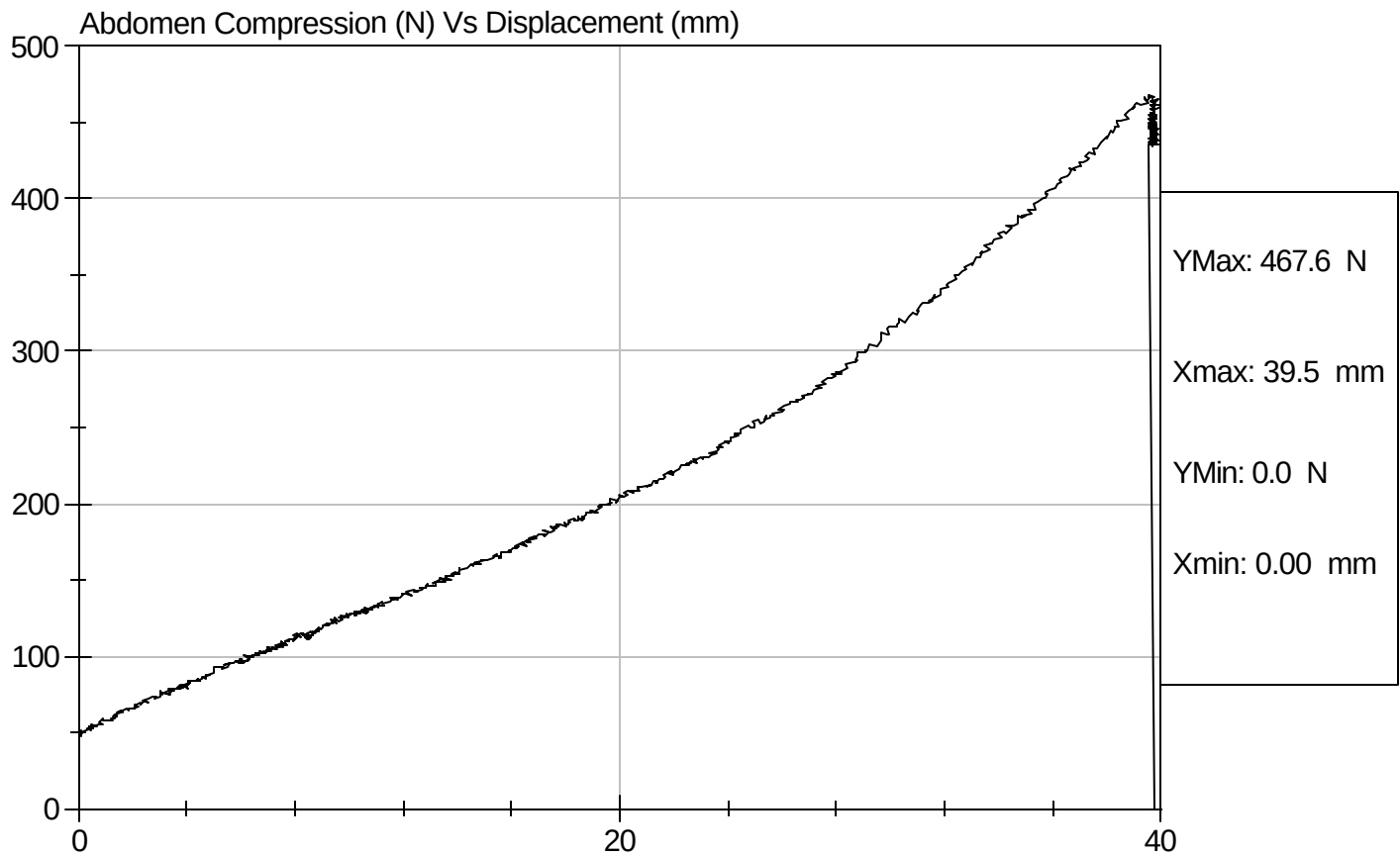


Test Description: Abdomen Compression

Test Date: 2/14/02

Component: D02224

Speed: 0 ft/sec, 0.00 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 036

Test I.D: D02225

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	21	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	107.7	Pass
Force At 30 deg	N	151.2 - 204.6	152.0	Pass
Force At 40 deg	N	204.6 - 258.0	224.3	Pass
Return Angle	Deg	12 Maximum	10	Pass
Overall Test Results			Pass	

Laboratory Technician

2/14/02
Test Date

Approved By

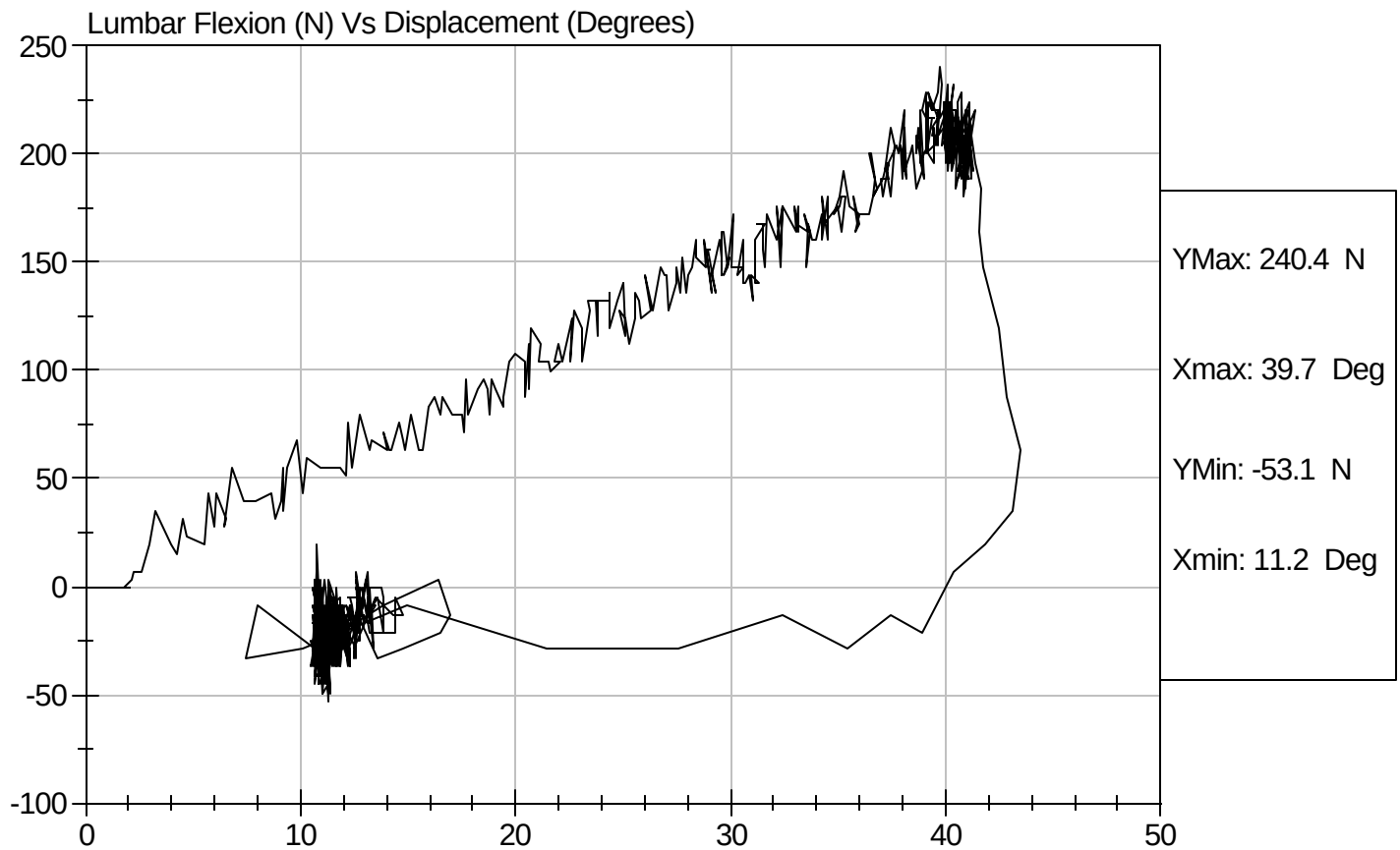


Test Description: Lumbar Flexion

Test Date: 2/14/02

Component: D02225

Speed: 0 ft/sec, 0.00 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

3/11/02

Test Date

Approved By

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: D0238

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

3/11/02
Test Date

Approved By

SID Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration

ATD Serial No: 037

Test I.D: D02381

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.9	Pass
Laboratory Relative Humidity	%	10 to 70	32	Pass
Peak Resultant Acceleration	G's	210 to 260	218	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

3/8/02
Test Date

Approved By



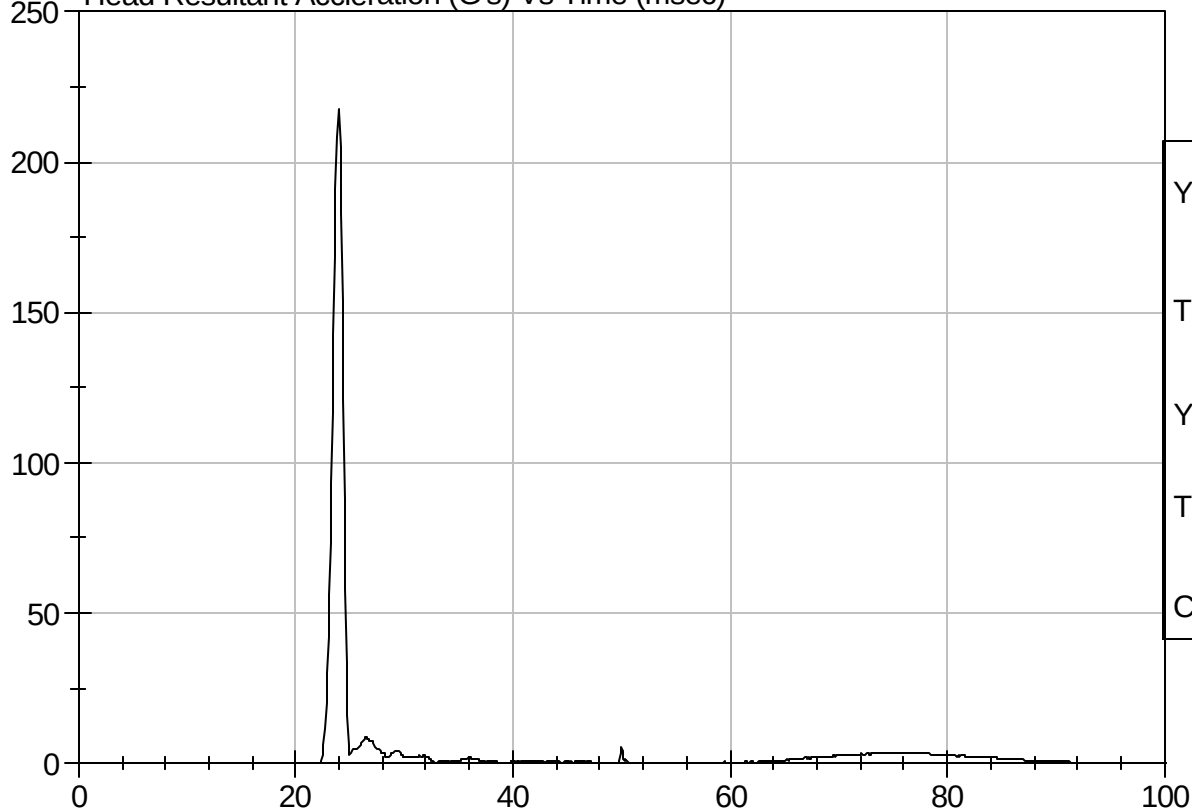
Test Description: Head Drop

Test Date: 3/8/02

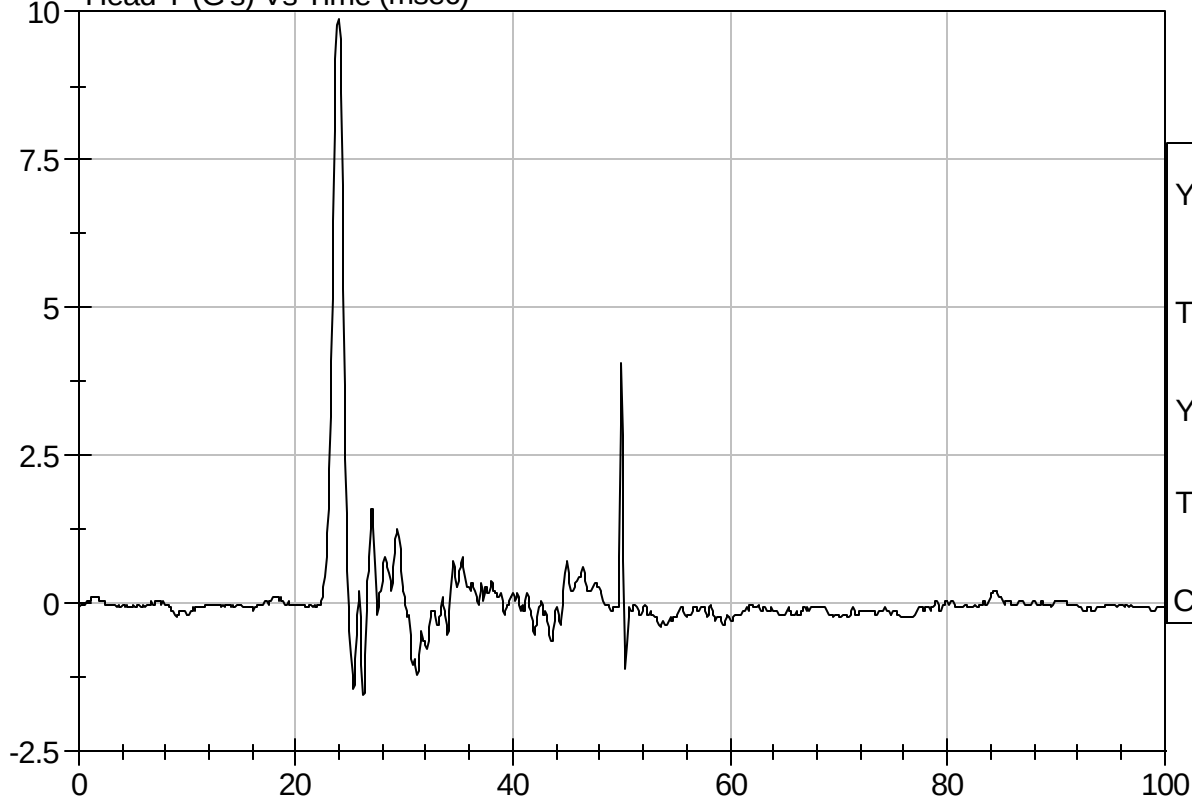
Component: D02381

Speed: 0 ft/s, 0.00 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: D02382

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	20.3	Pass
Laboratory Relative Humidity	%	10 to 70	21	Pass
Probe Velocity	m/s	4.27 - 4.33	4.29	Pass
Upper Rib	G's	37 - 46	45	Pass
Lower Rib	G's	37 - 46	45	Pass
Lower Spine	G's	15 - 22	21	Pass
			Overall Test Results	Pass

Laboratory Technician

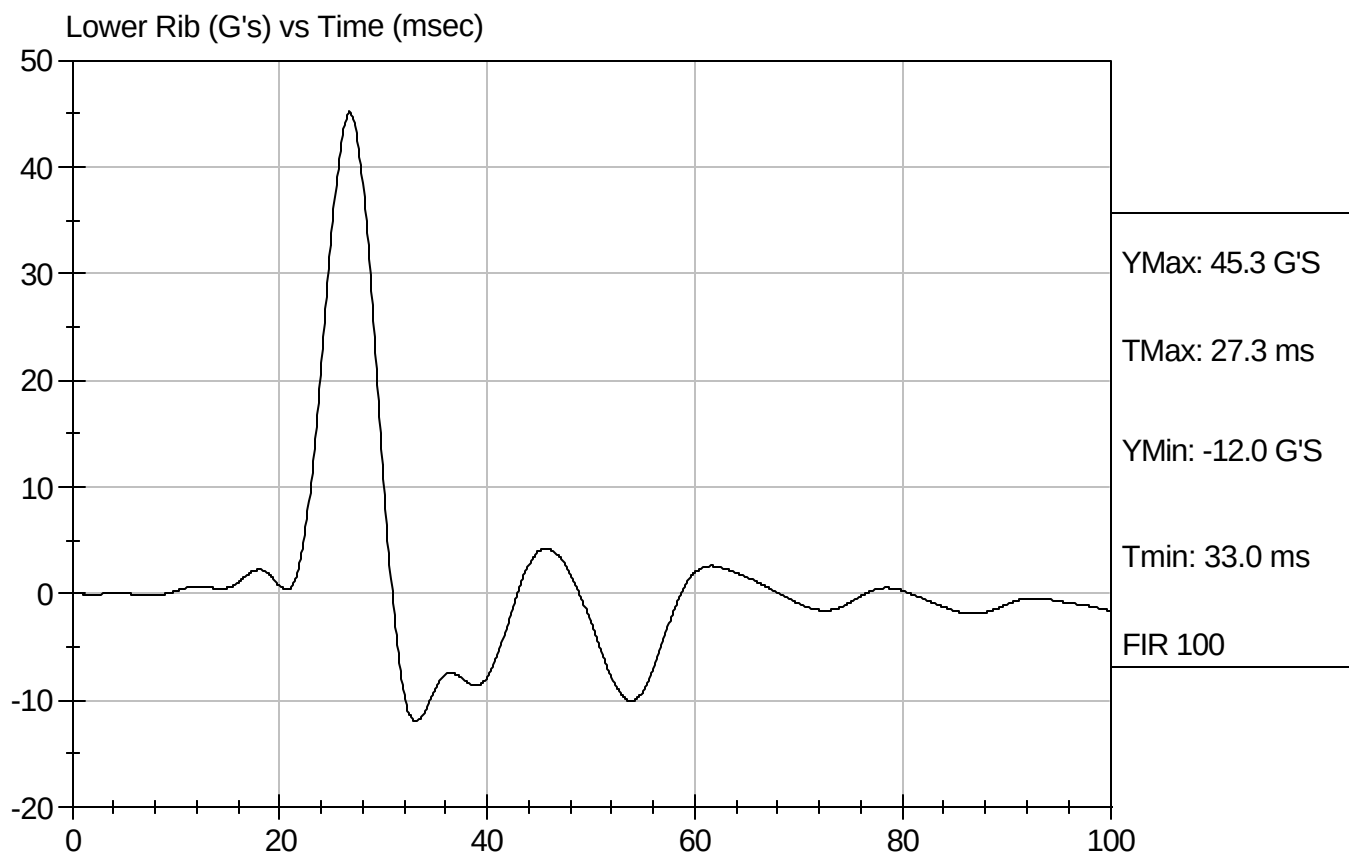
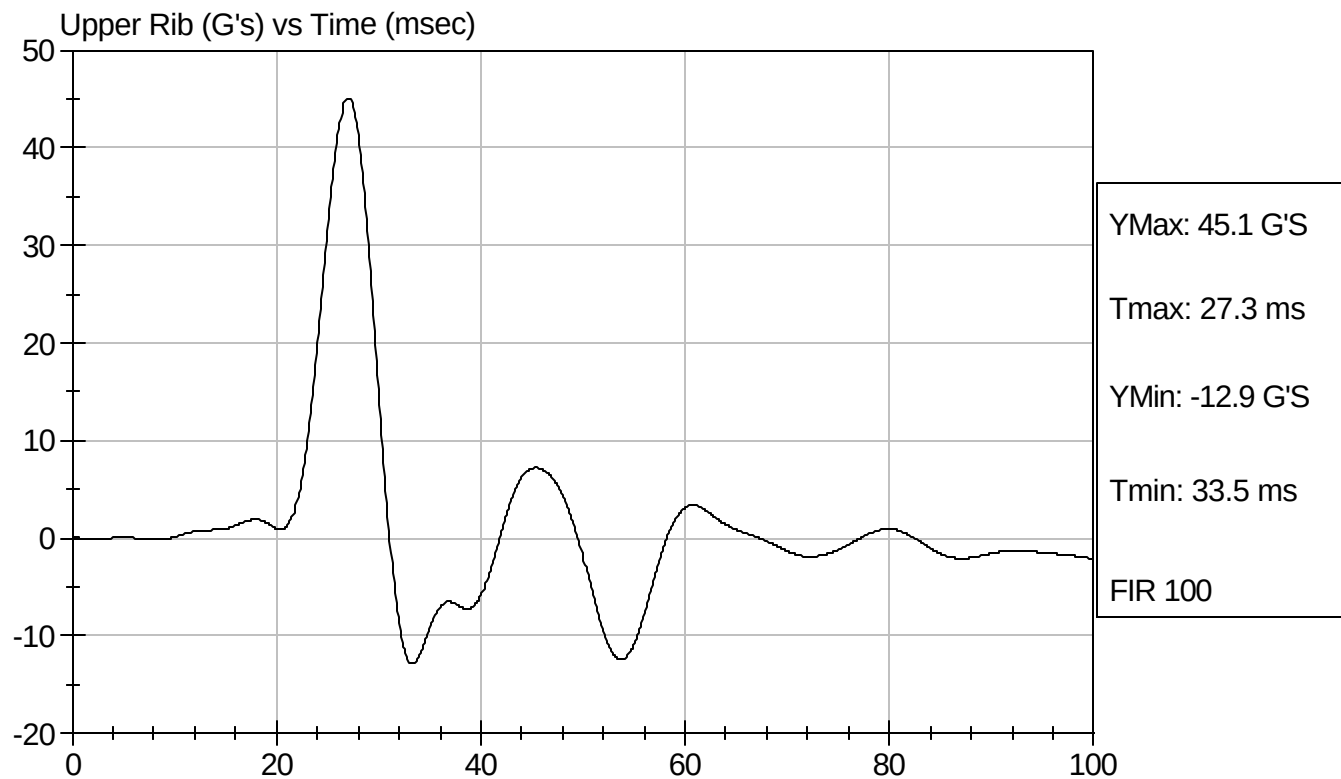
3/11/02
Test Date

Approved By



Test Desc: Thorax Impact
Component ID: D02382

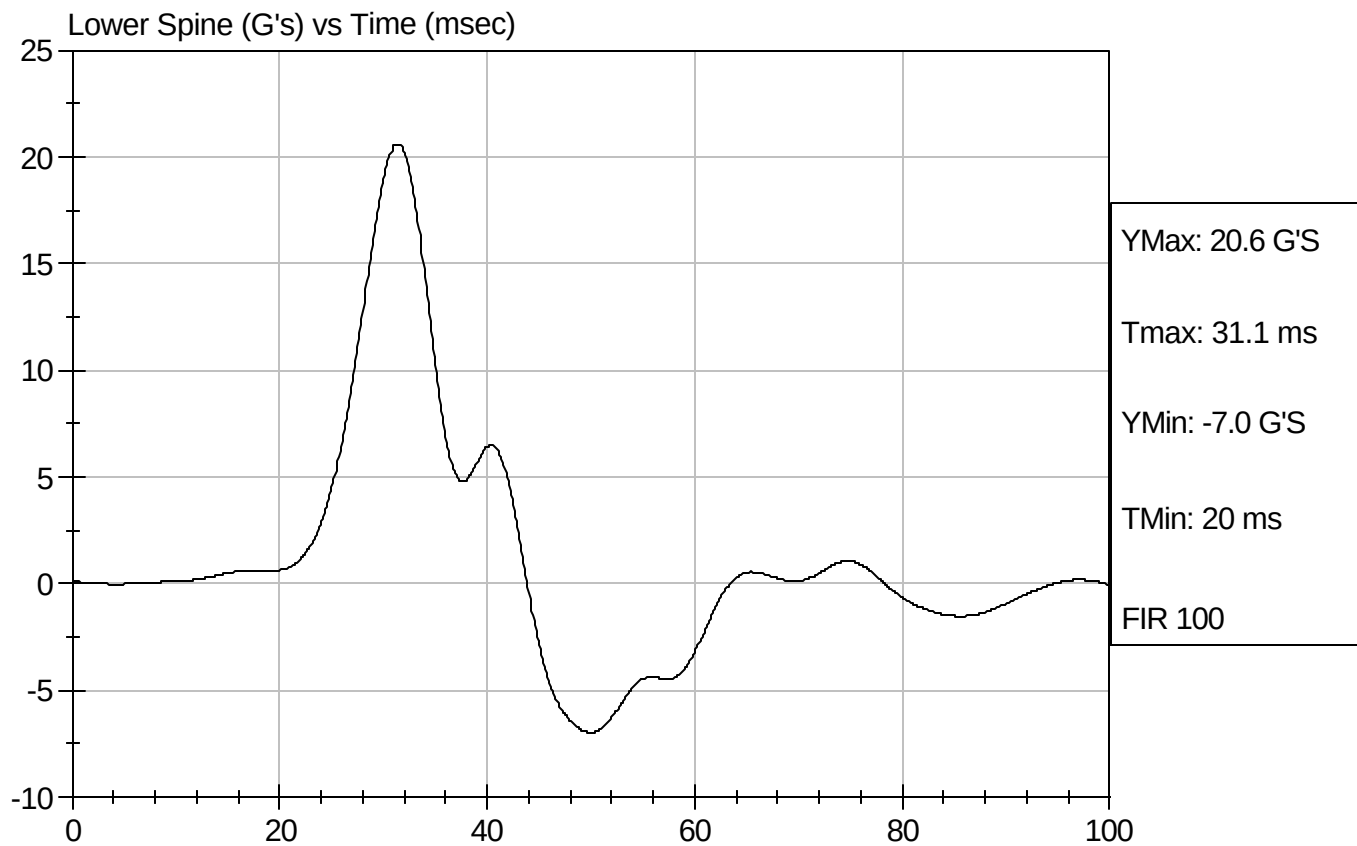
Test Date: 3/11/02
Speed: 14.09 ft/sec, 4.29 m/sec





Test Desc: Thorax Impact
Component ID: D02382

Test Date: 3/11/02
Speed: 14.09 ft/sec, 4.29 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 037

Test I.D: D02383

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.3	Pass
Laboratory Relative Humidity	%	10 to 70	21	Pass
Probe Velocity	m/s	4.27 - 4.33	4.29	Pass
Pelvis Acceleration	G's	40 - 60	47	Pass
			Overall Test Results	Pass

Laboratory Technician

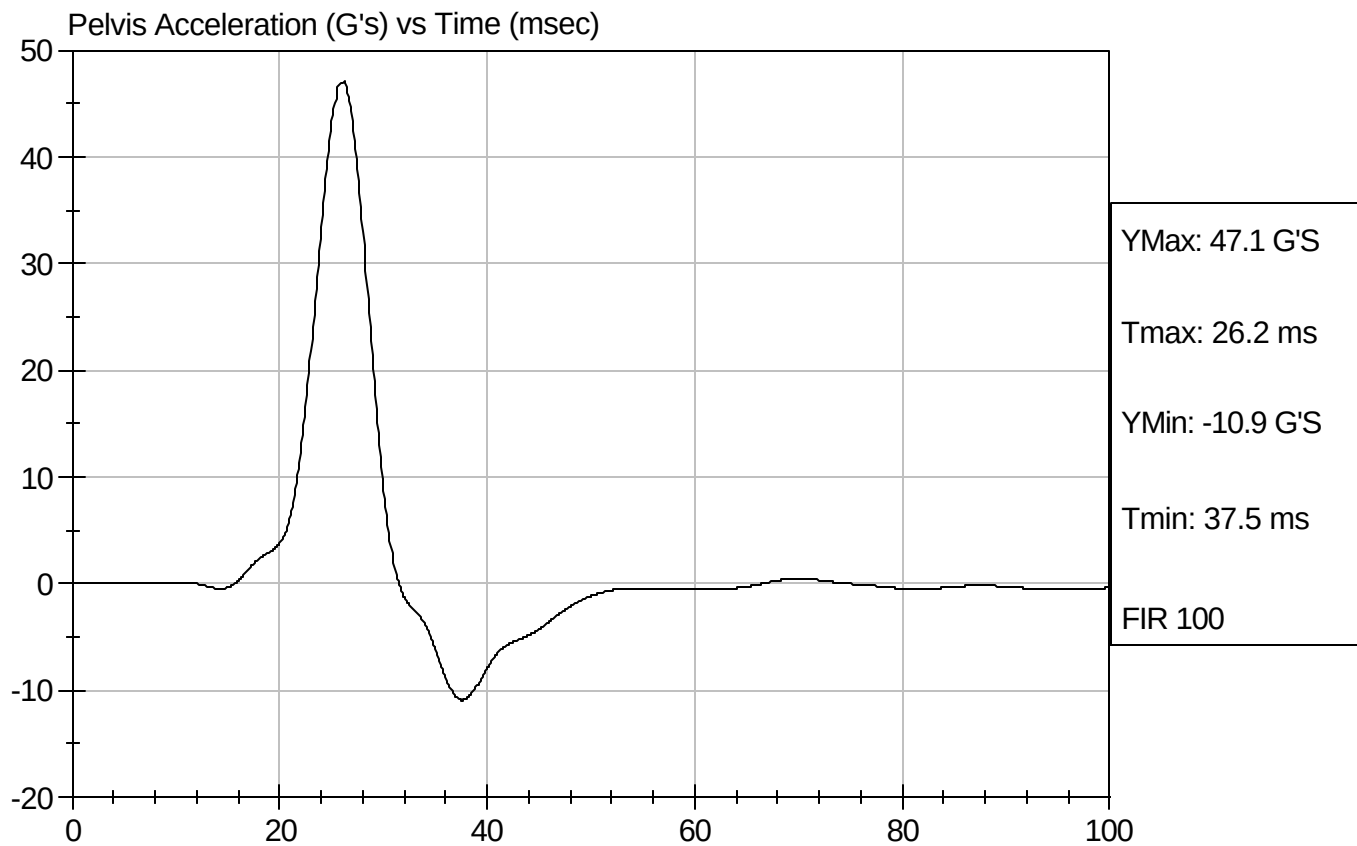
3/11/02
Test Date

Approved By



Test Desc: Pelvis Impact
Component ID: D02383

Test Date: 3/11/02
Speed: 14.09 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: D02384

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Force At 12.7 mm	N	104 -162	139	Pass
Force At 19 mm	N	163 - 222	191	Pass
Force At 25.4 mm	N	222 - 280	259	Pass
Force At 33 mm	N	325 - 391	363	Pass
Overall Test Results				Pass

Laboratory Technician

3/8/02
Test Date

Approved By

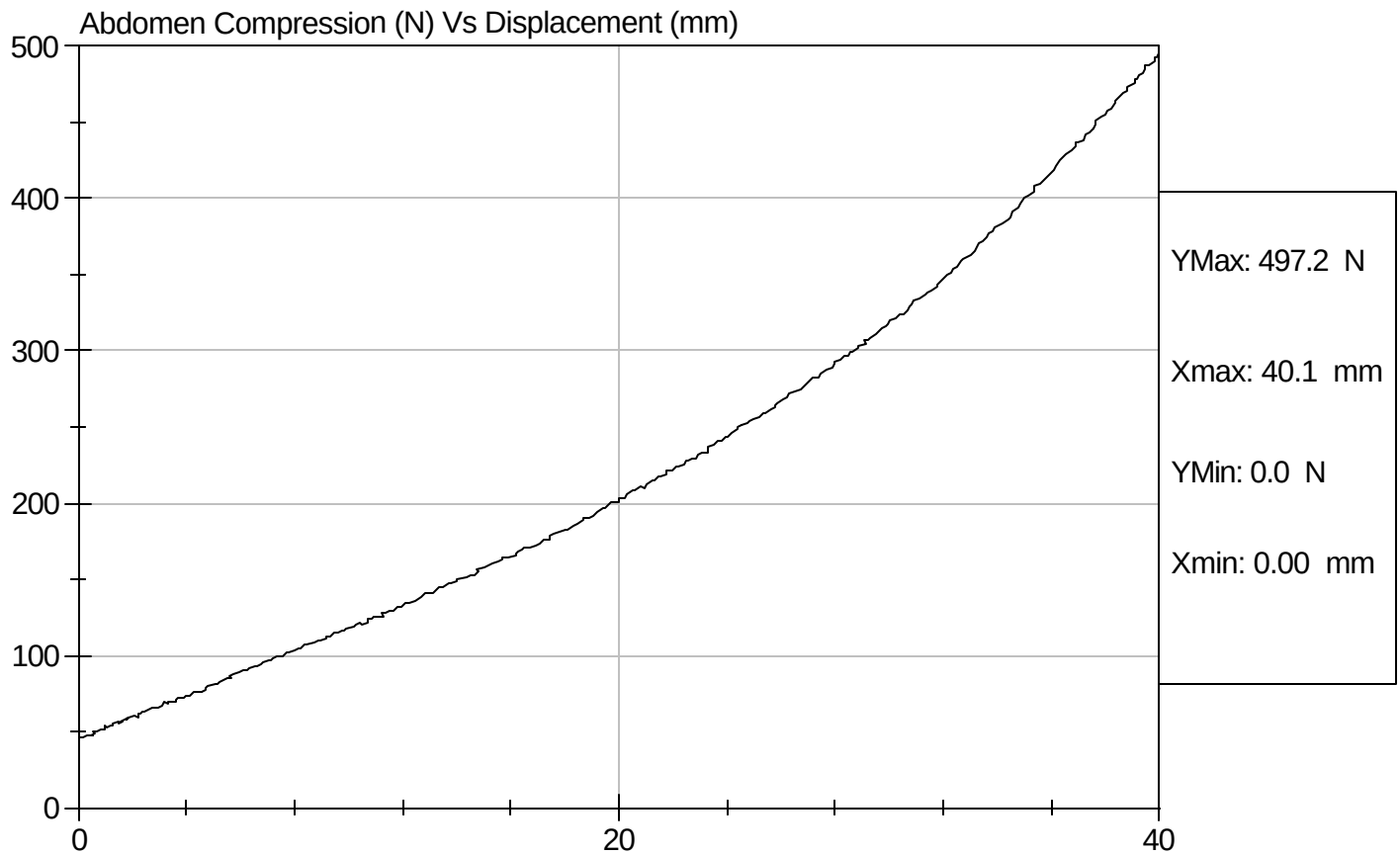


Test Description: Abdomen Compression

Test Date: 3/8/02

Component: D02384

Speed: 0 ft/sec, 0.00 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 037

Test I.D: D02385

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	104.8	Pass
Force At 30 deg	N	151.2 - 204.6	165.1	Pass
Force At 40 deg	N	204.6 - 258.0	217.5	Pass
Return Angle	Deg	12 Maximum	3	Pass
Overall Test Results			Pass	

Laboratory Technician

3/8/02
Test Date

Approved By

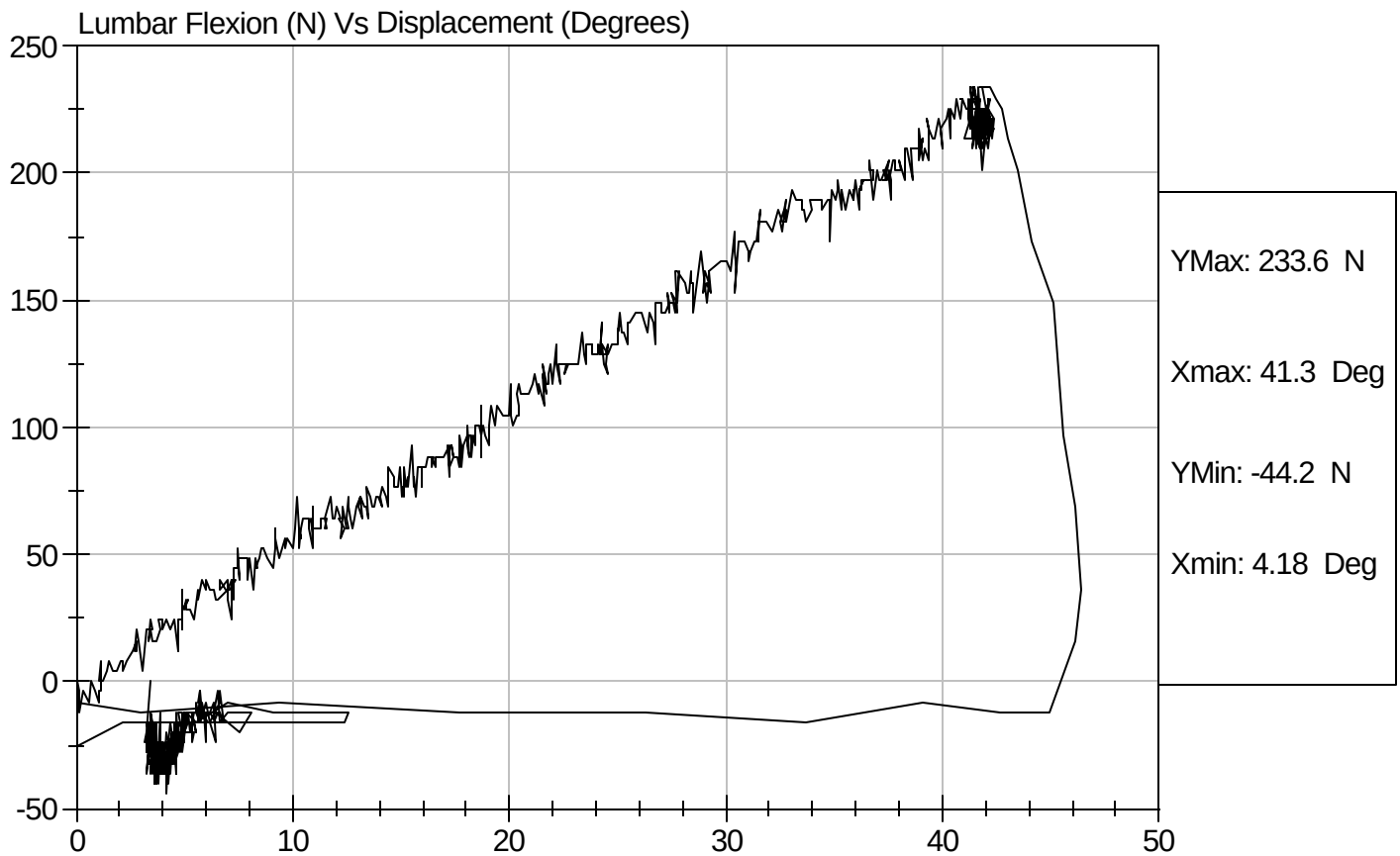


Test Description: Lumbar Flexion

Test Date: 3/8/02

Component: D02385

Speed: 0 ft/sec, 0.00 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

3/11/02

Test Date

Approved By

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: D0237

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

3/11/02
Test Date

Approved By

SID Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration

ATD Serial No: 036

Test I.D: D02371

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.9	Pass
Laboratory Relative Humidity	%	10 to 70	32	Pass
Peak Resultant Acceleration	G's	210 to 260	232	Pass
Peak Lateral Acceleration	G's	< 10	5	Pass
Time Above 100 G	msec	0.9 - 1.5	1.2	Pass
			Overall Test Results	Pass

Laboratory Technician

3/8/02
Test Date

Approved By



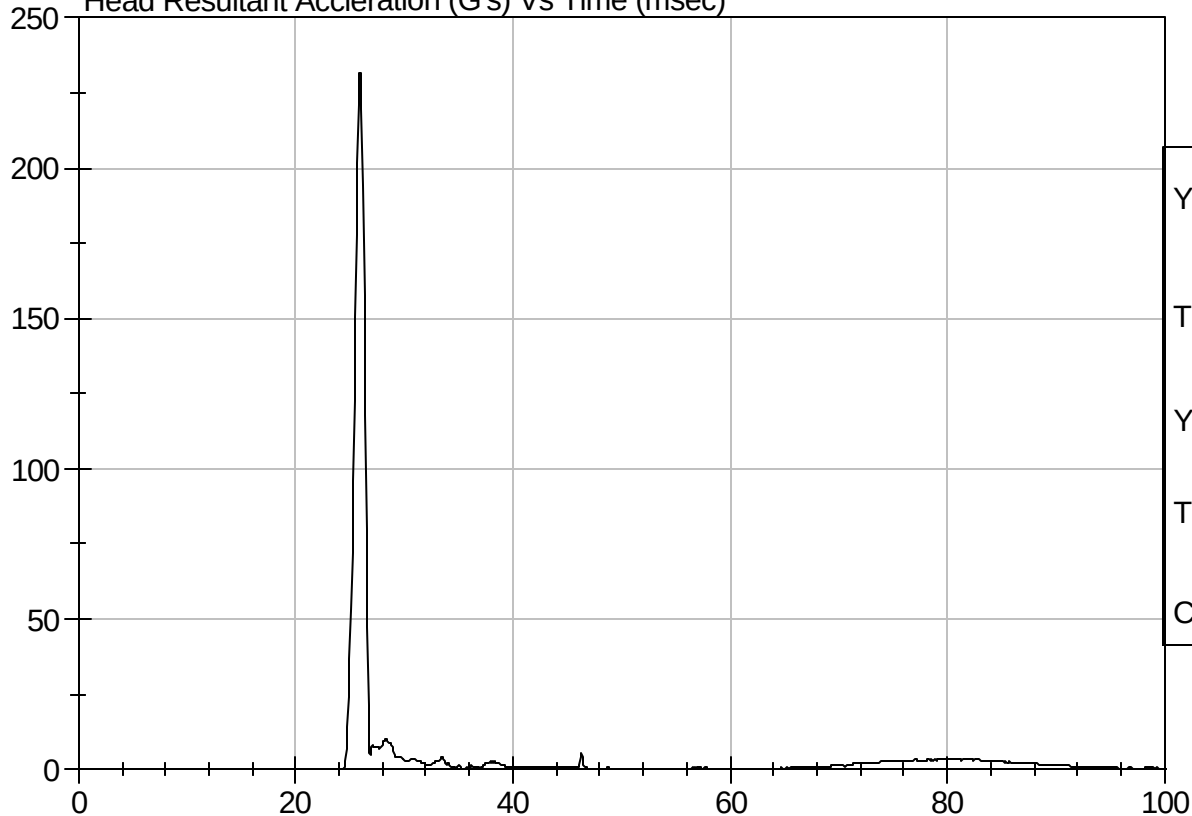
Test Description: Head Drop

Test Date: 3/8/02

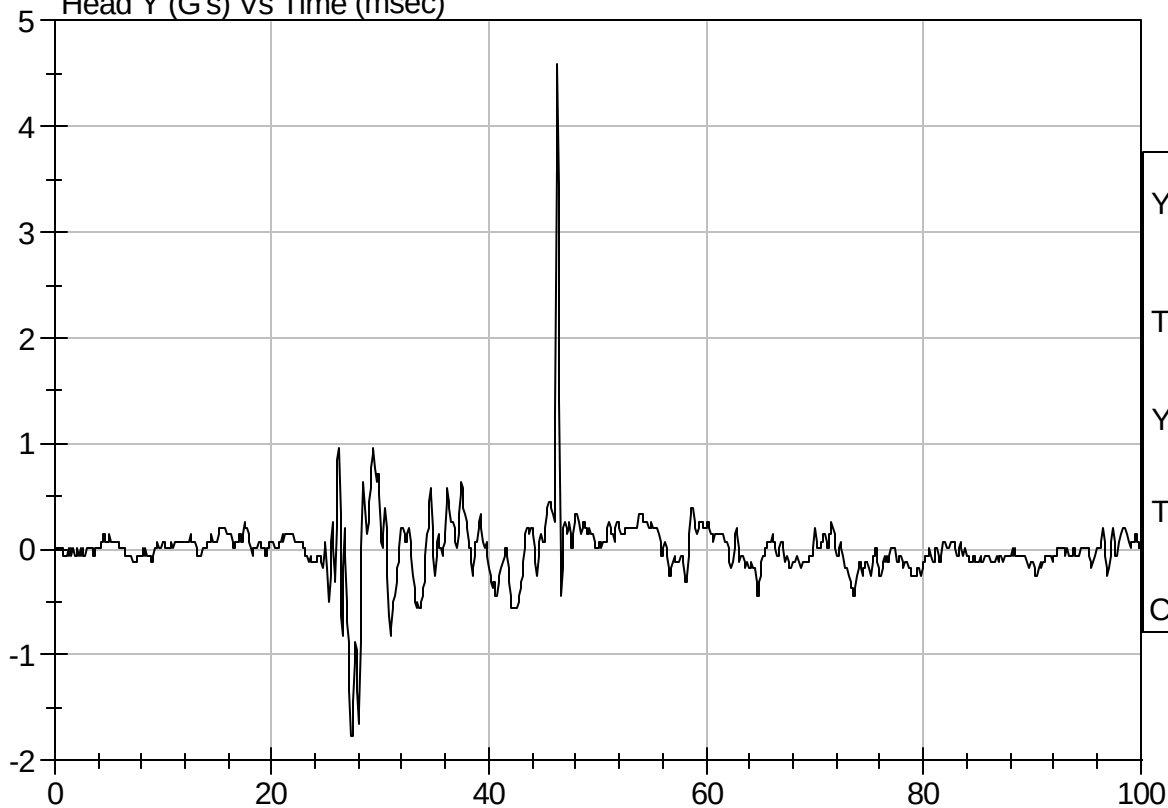
Component: D02371

Speed: 0 ft/s, 0.00 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: D02372

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	19.9	Pass
Laboratory Relative Humidity	%	10 to 70	20	Pass
Probe Velocity	m/s	4.27 - 4.33	4.29	Pass
Upper Rib	G's	37 - 46	46	Pass
Lower Rib	G's	37 - 46	46	Pass
Lower Spine	G's	15 - 22	18	Pass
			Overall Test Results	Pass

Laboratory Technician

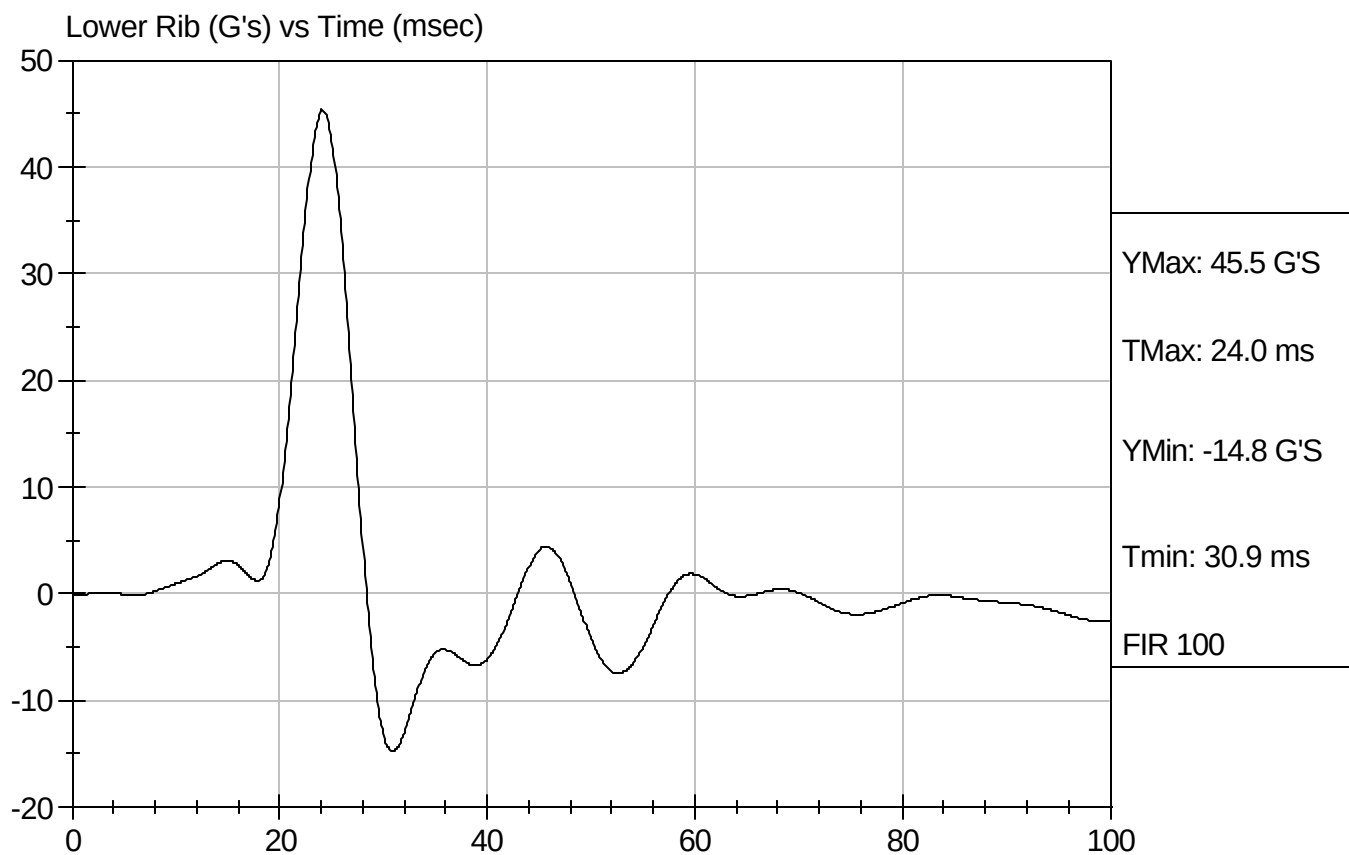
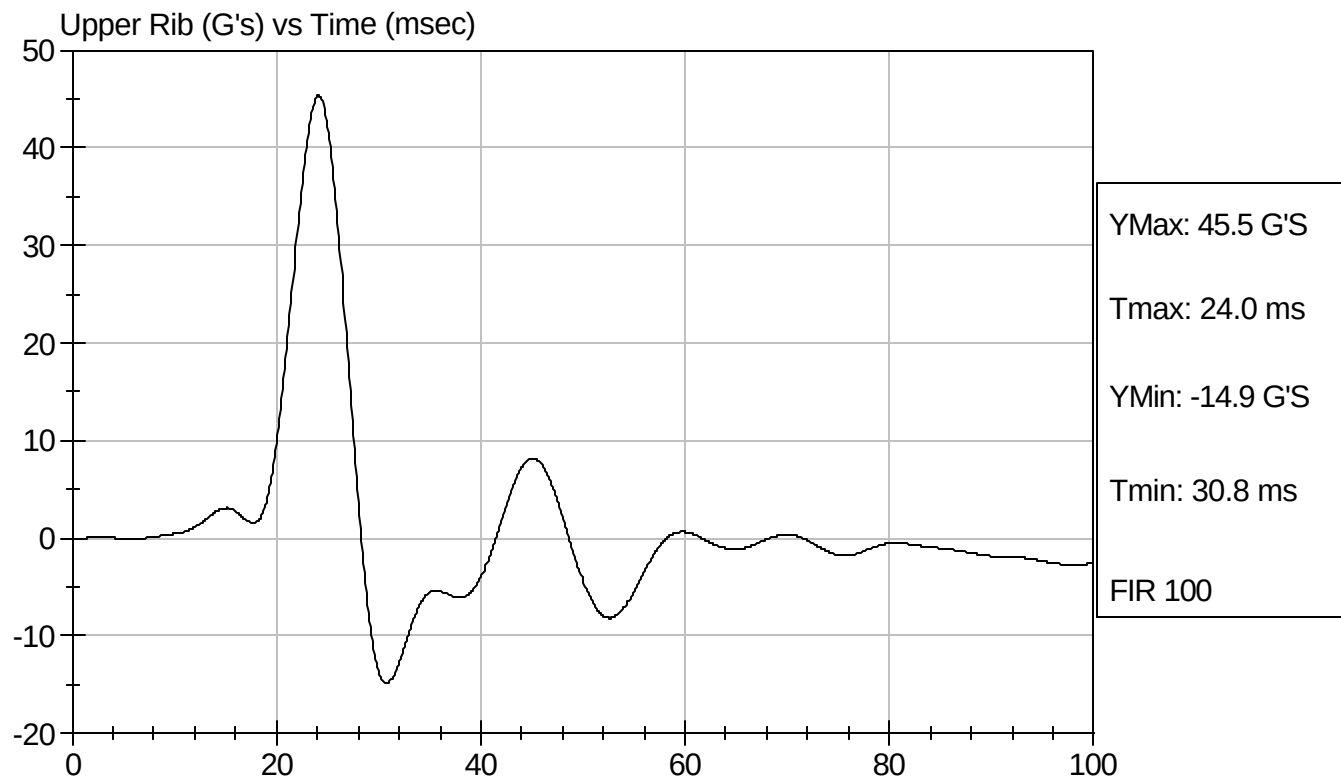
3/11/02
Test Date

Approved By



Test Desc: Thorax Impact
Component ID: D02372

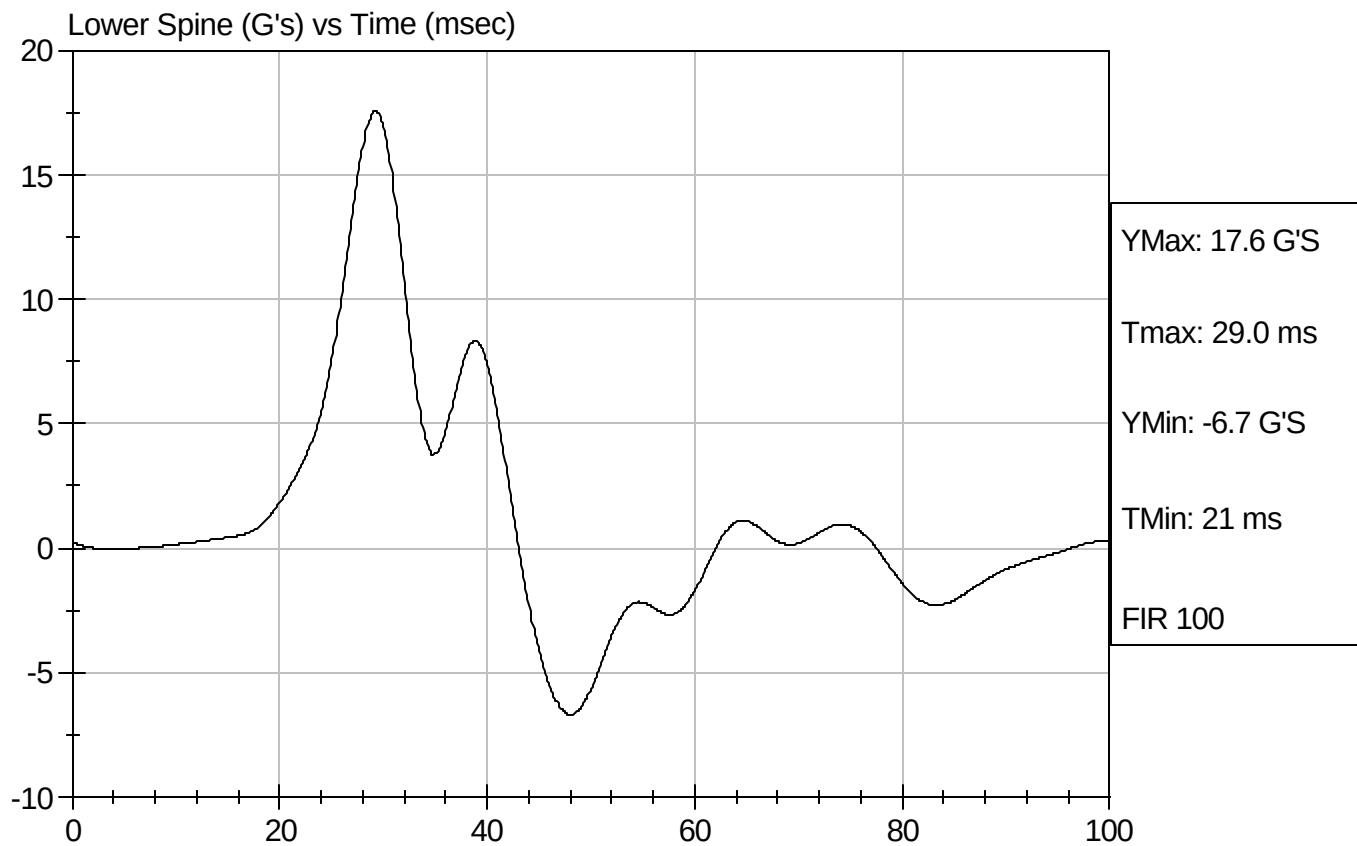
Test Date: 3/11/02
Speed: 14.09 ft/sec, 4.29 m/sec





Test Desc: Thorax Impact
Component ID: D02372

Test Date: 3/11/02
Speed: 14.09 ft/sec, 4.29 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 036

Test I.D: D02373

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	19.9	Pass
Laboratory Relative Humidity	%	10 to 70	20	Pass
Probe Velocity	m/s	4.27 - 4.33	4.30	Pass
Pelvis Acceleration	G's	40 - 60	43	Pass
Overall Test Results			Pass	

Laboratory Technician

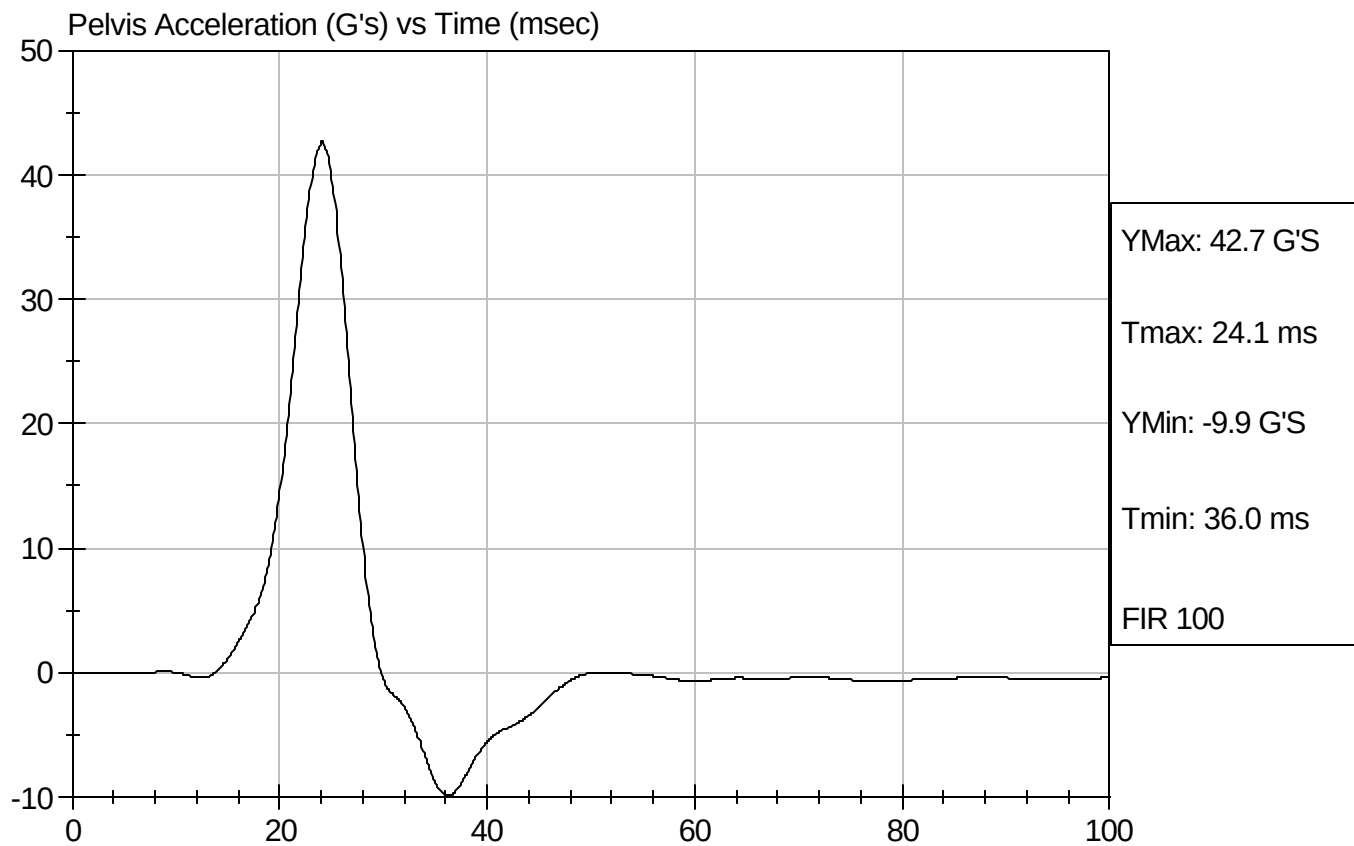
3/11/02
Test Date

Approved By



Test Desc: Pelvis Impact
Component ID: D02373

Test Date: 3/11/02
Speed: 14.10 ft/sec, 4.30 m/sec



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

ATD Serial No: 036

Test I.D: D02374

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Force At 12.7 mm	N	104 -162	146	Pass
Force At 19 mm	N	163 - 222	206	Pass
Force At 25.4 mm	N	222 - 280	278	Pass
Force At 33 mm	N	325 - 391	391	Pass
Overall Test Results				Pass

Laboratory Technician

3/8/02
Test Date

Approved By

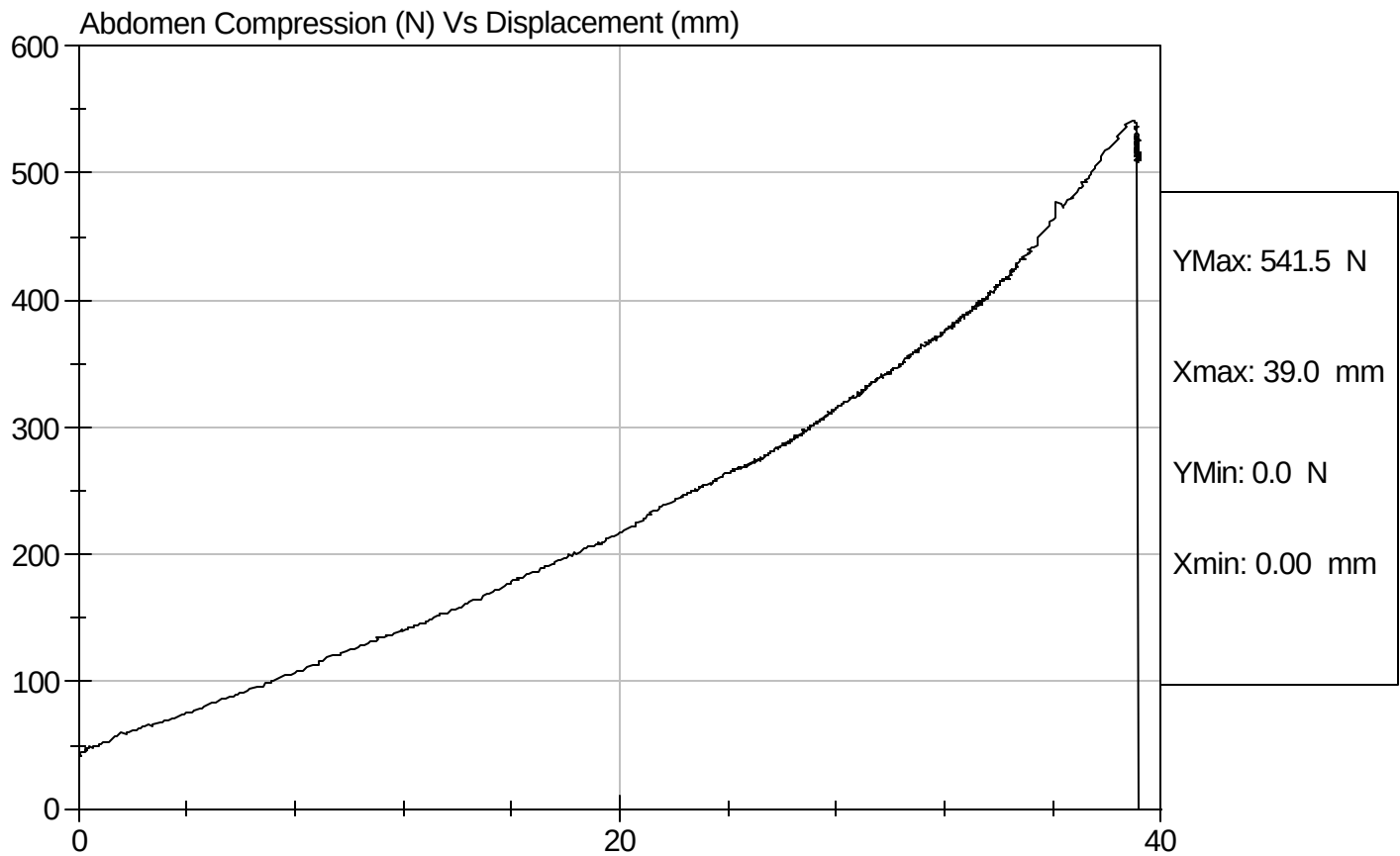


Test Description: Abdomen Compression

Test Date: 3/8/02

Component: D02374

Speed: 0 ft/sec, 0.00 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 036

Test I.D: D02375

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	100.0	Pass
Force At 30 deg	N	151.2 - 204.6	184.5	Pass
Force At 40 deg	N	204.6 - 258.0	253.0	Pass
Return Angle	Deg	12 Maximum	6	Pass
Overall Test Results			Pass	

Laboratory Technician

3/8/02
Test Date

Approved By

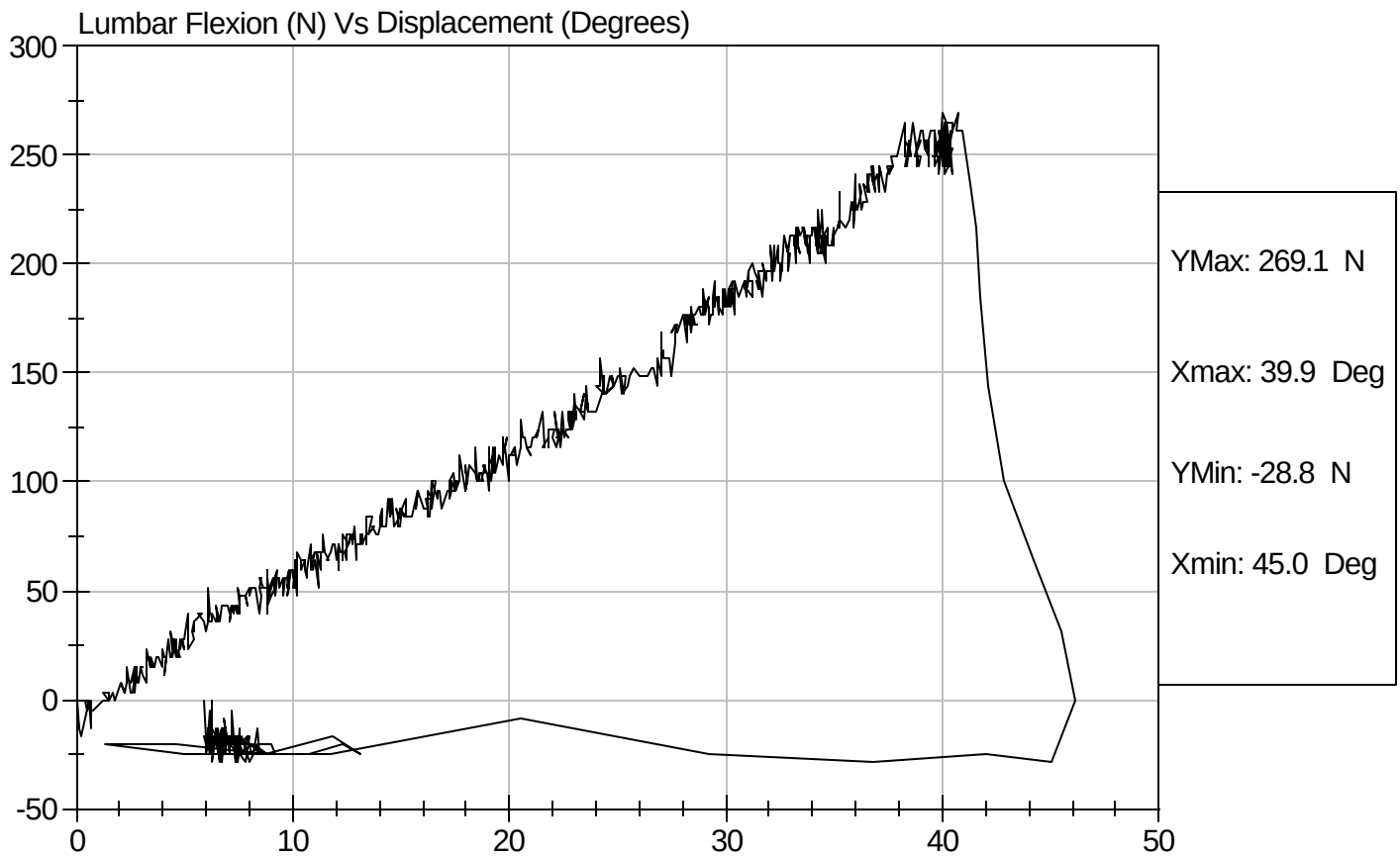


Test Description: Lumbar Flexion

Test Date: 3/8/02

Component: D02375

Speed: 0 ft/sec, 0.00 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

3/11/02

Test Date

Approved By

APPENDIX D

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

DUMMY AND VEHICLE CALIBRATION DATA

	INSTRUMENTS FOR DRIVER 37		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	J13942	Endevco	10/2/01
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
Head Center of Gravity X	ALB87	Endevco	1/7/02
Head Center of Gravity Y	AHRP5	Endevco	1/7/02
Head Center of Gravity Z	AJ9T6	Endevco	1/7/02

	INSTRUMENTS FOR PASSENGER 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
Head Center of Gravity X	J21970	Endevco	1/7/02
Head Center of Gravity Y	J21691	Endevco	1/7/02
Head Center of Gravity Z	J22033	Endevco	1/7/02

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Moving Barrier CG X	E03-H04	Entran	11/2/01
Moving Barrier CG Y	A08-A08	Entran	11/2/01
Moving Barrier CG Z	K16-X08	Entran	10/1/01
Moving Barrier Rear Axle X	F04-N06	Entran	3/1/02
Moving Barrier Rear Axle Y	D11-F16	Entran	11/2/01
Left Mid A-Post Y	K21-N18	Entran	1/17/01
Left Lower A-Post Y	K21-N19	Entran	1/17/02
Left Mid B-Post Y	K21-N02	Entran	12/11/011
Left Lower B-Post Y	K21-N17	Entran	12/17/01
Rear Floorpan Above Axle Y	K21-N04	Entran	12/11/01
Driver Seat Track Y	K21-N24	Entran	1/17/02
Right Side Sill at Front Seat X	H14-N07	Entran	9/12/01
Right Side Sill at Front Seat Y	H14-N10	Entran	9/12/01
Right Side Sill at Front Seat Z	H14-N11	Entran	9/12/01
Right Side Sill at Rear Seat X	K21-N09	Entran	12/11/01
Right Side Sill at Rear Seat Y	K21-N11	Entran	12/11/01
Right Side Sill at Rear Seat Z	K21-N10	Entran	12/11/01
Left Side Sill at Front Seat Y	I12-F14	Entran	10/29/01
Left Side Sill at Rear Seat Y	H07-F07	Entran	9/27/01
Right Rear Occupant Compartment Y	K21-N20	Entran	1/17/02
Vehicle CG X	K11-G09	Entran	9/27/01
Vehicle CG Y	K16-X06	Entran	10/29/01
Vehicle CG Z	I12-N04	Entran	12/11/01

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